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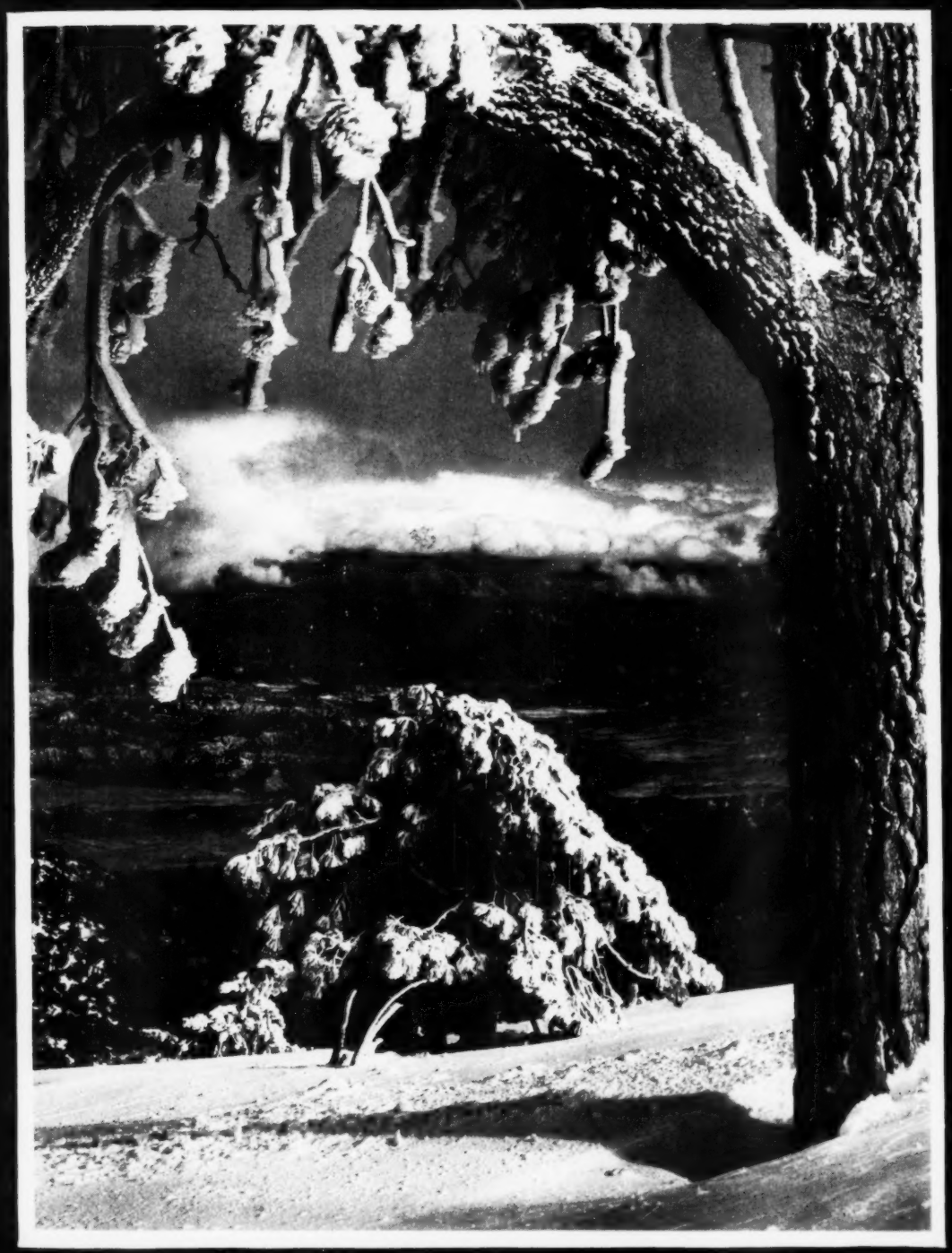

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American Forests

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THE AMERICAN FORESTRY ASSOCIATION

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The American Forestry Association, founded in 1875, is a citizens' organization for the advancement of intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation.

Its educational activities seek to bring about a better appreciation and handling of these resources, whether publicly or privately owned, that they may contribute permanently to the welfare of the nation and its people.

In addition to publication of its magazine—AMERICAN FORESTS—designed to keep before the people of the country important conservation questions and issues, the Association carries on educational programs in various fields including forest fire prevention, reforestation, protection of wildlife, prevention of soil erosion, preservation of wilderness areas, establishment of national forests and parks, advancement of forestry by private endeavor, the teaching of conservation in schools and the promotion of research in timber growing and forest utilization.

The Association is independent and non-commercial, and has no connection with any federal or state governments. All its resources and income are devoted to the advancement of conservation in the interests of public welfare. All citizens are welcomed to membership.

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The Readers' Column

HOW DO TREES GROW?

SIR: At recent meetings of the Farmers' Club there has been discussion of the question whether trees which have not attained their full height do or do not grow only from the top. I am writing to ask your opinion on the subject.

Two specific cases have aroused interest: In one case, a white maple was girdled more than forty years ago by a chain which long since became imbedded in the tree. It is believed to have been originally at hitching-post height—four or five feet from the ground; is known by living witnesses to have been, some forty years ago, not more than eight feet from the ground and within convenient reach for use as a hammock chain; and is now about eleven or twelve feet above ground and altogether out of reach for any purpose.

The other case is a willow tree which has a single trunk with diverging stems in the form of the letter "Y." Some fifteen years ago the crotch was within easy reach of small children who passed a bit of rubber hose around one of the stems at the level of the crotch and used to swing themselves by holding on to the ends of the hose. The tree has grown much taller during the fifteen-year period. The hose became imbeded in the fibre of the tree at the level of the crotch. The ends of the hose are still clearly visible—as they protrude several inches from the bark. The crotch is now about six feet from the ground and far above the reach of a child. In other words, the crotch is several feet farther from the ground than it was fifteen years ago.

An opinion by you on the question under discussion will be much appreciated—as also any comment you care to make on the two cases recorded above.—*George Wharton Pepper,* Philadelphia, Pennsylvania.

The instances cited by Mr. Pepper are interesting and are believed explainable by faulty observations and memories. Certainly they are contrary to the accepted findings of authorities on tree growth. —*Editor.*

THE DAUNTLESS PLANE

SIR: Recently there appeared in the London *Times* an item which should be of real interest to the readers of AMERICAN FORESTS. It concerns a London plane tree which seems as "tough," in the proper sense, as the people of the town in which it originated. The item, in part, reads:

"In *The Times* of August 8 there appeared the reproduction of a photograph of a plane tree which had had the branches killed by fire during an air raid. Vigorous shoots had since appeared from dormant buds up and down the trunk, even from between dead branches, and at the time the photograph was taken these were of an appreciable length. The picture was most inspiring in its representation of resolution and perseverance, in, one might almost say, its portrayal of the example of a tree.

"No other tree can so well resist the environment of London—hence its popular name. Rooted beneath houses, reinforced concrete roads, and tarred pavements, confined in those grim and dark enclosures in Mayfair and Marylebone which are termed 'gardens' solely by reason of its presence, yearly opening its bright young leaves into an atmosphere of fog, dust, soot and other unpleasantness, the tree carries on in apparently perfect contentment."—*A London Reader.*

DEAD TREES

SIR: One of the most striking impressions of the trip with the Trail Riders of the Wilderness was riding through burned-over timber—hot, dusty, glaring miles to be covered as quickly as possible. Believe me, it is something I shall never forget as a lesson in conservation.

The following bit of rhyming, which I have called "Dead Trees," reflects my impressions after observing one of the blackened areas. It is written, of course, with apologies to Joyce Kilmer:

I would we never had to see
Forests of fire-blackened trees.
Trees where birds ne'er perch for long,
And seldom stop to sing a song.
Trees which through the seasons bear
The scars of carelessness. They stare
Naked, cheerless, gaunt and grim—
Corpses of trees which might have been.
Trees whose fate is now decay
Instead of beauty, grace and shade.
Such fools are we—such heedless, selfish fools,
Wasting this heritage of forest jewels.
Fires are set by fools like me,
When only God can grow a tree.

—*Dora M. Loetzer,* Rochester, New York.

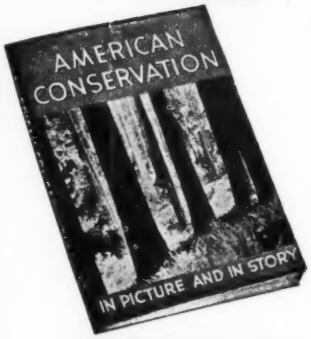
NUT TREE PLANTERS

SIR: Is there a national nut tree planting order? Should there be? Would one be feasible? Seems like the thought could be stimulated through the Squirrel Club, Ancient and Honorable Order of Squirrels, which has a wide membership.

Youth leaders are looking for constructive projects, something, they say, that doesn't "glorify" war.—*Margaret March-Mount,* Milwaukee, Wisconsin.

MAKE SURE THERE IS NO DIMOUT OF CHRISTMAS

THE American Forestry Association offers its members and friends two Christmas Gift suggestions, either of which will bring cheer to the recipient. This year, save time in shopping by ordering one of these gifts today. There is still plenty of time to receive and handle your order.



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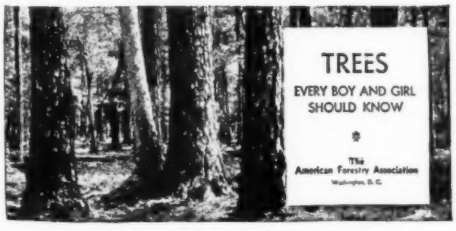

TREES EVERY BOY AND GIRL SHOULD KNOW. 50c. 3 x 8½". 112 pages. This book of 99 attractive strip drawings by Calvin Fader, pictures 38 hardwoods, 38 evergreens, and 23 famous American trees, such as the Cambridge Elm, the Charter Oak, The Nation's Christmas Tree and others important in American history.

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BIG TREES

The American Forestry Association is sponsoring a national hunt for the discovery and preservation of the largest specimens of the different species of typical American trees. Locate, measure and nominate your candidate in this competition. ACT NOW to make known and save the largest specimens of America's trees. For further details, send for the Association's special announcement of this Big Tree hunt. Mail your nomination with records and pictures to The American Forestry Association, 919 17th Street, Northwest, Washington, D. C.

GREAT BALSAM POPLAR

NEAR Geneva, New York, on Route 20, stands the great balsam poplar, *Populus balsamifera*, known in American tree lore as the Lafayette Tree. Under this historic poplar, it is recorded, General Lafayette, on June 8, 1825, was received by a guard of honor consisting of a large concourse of citizens and a military escort.

This giant, one of the largest trees in New York, was nominated in The American Forestry Association's Big Tree campaign by O. E. Files, of Toledo, Ohio. According to his report, the tree has a circumference of twenty-four feet four and a half feet above the ground. Its height is reported as 124 feet, its limb spread as 115 feet.

The origin of this tree, it is said, dates back to the time pioneers first began to settle in Geneva. A traveler cut a cane, to assist him on his journey afoot. He stuck this in the ground shortly afterwards, while resting in a maple grove west of the village. When he resumed his journey he forgot the cane and the freshly cut stick sprouted and grew. The maples were cut down years later but the poplar was spared because of its interesting history.

Mrs. Maria P. Andrews

Under this great balsam poplar Lafayette was welcomed

HOW THE word "conservation" came to be selected to designate the American movement for better management of national resources has been the subject of many a speculative discussion among conservationists. Those of the older generation know that it goes back to the days of Theodore Roosevelt when forestry was just beginning to walk in this country. But how T. R. happened to seize upon the word and with characteristic vigor and lasting effect fasten it upon a movement that eventually was to embrace virtually all resources is not generally known. Recently, Harry Slattery, administrator of the Rural Electrification Administration, who was a close associate of Gifford Pinchot in the early days of American forestry, revealed the historical circumstances which attended the adoption of the word. Speaking before a meeting of the Friends of the Land, Mr. Slattery became reminiscent of "conservation" days around the turn of the century.

"I was there when conservation was born or at least when we named it," he said. "This is how it happened. Sir Frederick Brandes had come to this country, a great German, English, Indian and South African forester, a great personality. Queen Victoria in decorating him gave him the title of 'Man of the World.' He was in Washington. He had seen T. R., of course, and my early friend and mentor, Gifford Pinchot. Embryonic work had been started here in conservation. I had been on the Interstate Waterways Commission. We had some reclamation work. Hugh Bennett had started his preachments on soil conservation. One day T. R. said in his fine manner, 'We have got to find some name for this thing.' Sir Frederick Brandes had been talking about the work in India and later Pinchot put the question of a name to him. 'Why don't you call it conservation? We have soil conservation districts in India,' Brandes said.

"On a horseback ride the next day with Pinchot through the hills of Virginia, T. R. again brought up the subject. Pinchot told him of Brandes' remark. T. R. said: 'It is going to be conservation.' And conservation it was."

Later T. R. gave the briefest and the best definition of the word that has yet been written. "Conservation," he said, "is preservation by wise use."

* * * * *

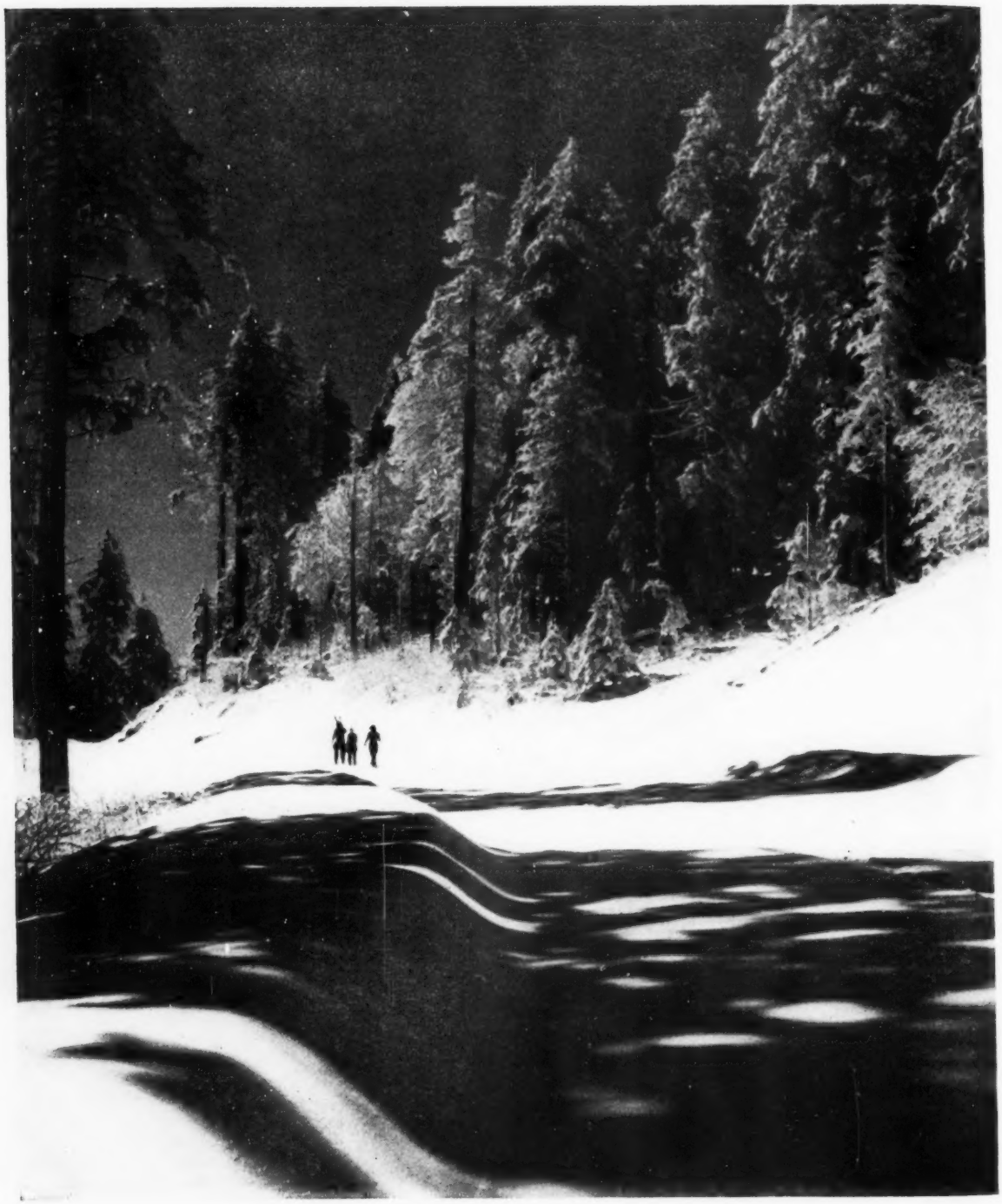
You see little or nothing about it in the papers but when the Japs captured the Philippines they captured a vast storehouse of forest resources. From all reports this forest prize is standing the Japs in good stead because now that trade access to our Pacific Coast timber is cut off, the Philippines form their main source of wood supply for ship building and other war needs. In some parts of the Islands lumbering had been well developed and large modern plants built. In fact the Philippines boasted of one of the largest and most modern hardwood mills in the world. It is safe to say that the Japs have lost no time in taking over these plants and in operating them to full capacity.

About one-half the area of the Islands, or some forty million acres, is forested and two-thirds of the forests are virgin growth. Visualize an uncut forest extending solidly over the states of New Jersey, Connecticut, Rhode Island, Massachusetts, Vermont and New Hampshire, containing a volume of wood that would build thirteen million American homes and you get some conception of the forest wealth which fell into the hands of the Japs when Corregidor fell.

The Philippine forests are for the most part quite different from those of the United States. They are composed largely of species of the *Dipterocarp* family among which is the Tanguile, the wood of which often passes for mahogany although the tree is not a true mahogany. Next in importance are the Molave forests on dry sites in the lower hills. In the high mountains of Luzon there are extensive forests of open grown pine (*pinus insularis*) which in some respects resemble our own pine forests. Another type of tree growth—and one of special importance to the Philippines as a source of fire wood—is the mangrove forest at the mouths of rivers and along the sources of many bays.

When the Japanese captured Corregidor and took over the Islands they also took over an alert and efficient Philippine Forest Service developed under the leadership of American foresters, outstanding among whom were the late Colonel George P. Ahern and Colonel Arthur F. Fischer, whose dramatic escape from Bataan was reported in these pages a few months ago. At the time of the American capitulation, the Philippine Forest Service was composed mainly of Philippine foresters, although two American foresters—Hugh Curran of North Carolina and Harold Cuzner of Minnesota—are known to have been "taken over" by the Japs. Both men were teaching in the Philippine Forest School at Los Banos. Their fate is not known.

Ovid Butler



Real wilderness skiing through virgin forests and along a mountain crest of incomparable beauty rewards those who would follow the white trails of the Smokies

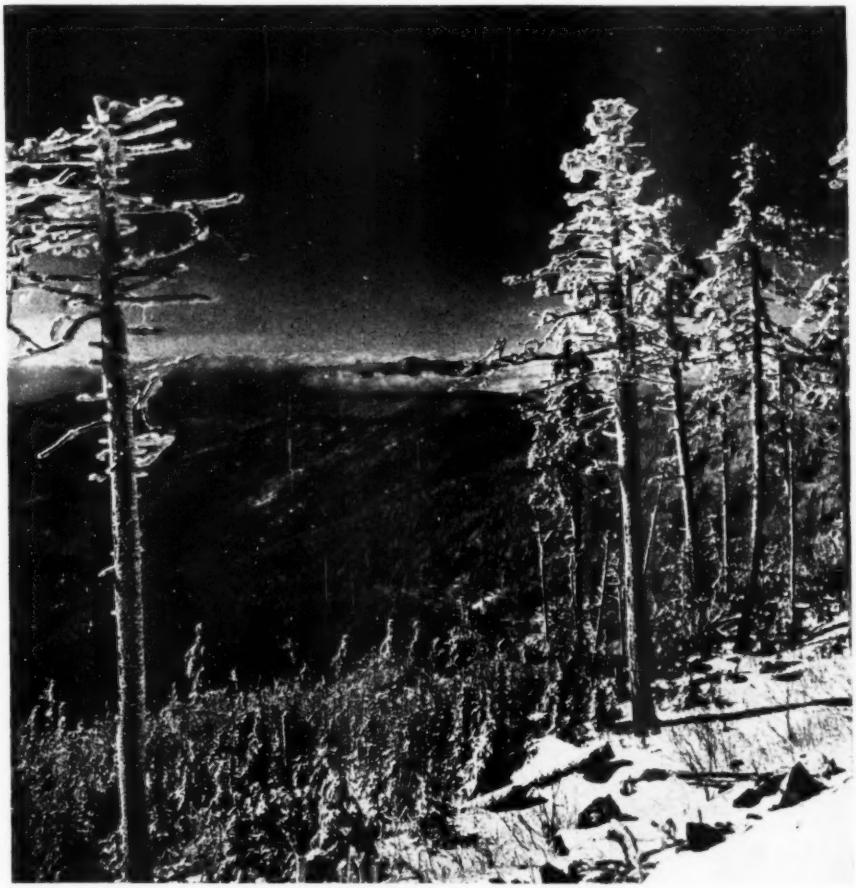
SKIS GO SOUTH

Amid the Wild Grandeur of the Great Smoky Mountains, Winter Sports Enthusiasts are Blazing New Snow Trails

By JAMES L. DYSON

ON the day in January a letter arrived from Gene Gooch, the Georgia sun was warm and pleasant at Fort Benning. Gene was secretary of the Great Smokies Ski Club, the only organization of its kind so far south, and being unfamiliar with skiing possibilities in that great range of mountains which sits astride the Tennessee-North Carolina boundary, I had asked him to inform me when the first good snow fell. And here he was, telling me that four inches of snow on an icy base was affording fair skiing at Indian Gap. This condition was not the best, Gene admitted, and I was unprepared to make the trip, so I passed up this first opportunity to answer the question that had been in my mind for some time — what kind of skiing was there in the Great Smokies?

I had visited these mountains briefly in June on my way from New York to Fort Benning, and was greatly impressed by their wild and rugged beauty. Later, when winter set in, and I began to recall longingly the snow clad hills of upstate New York, my thoughts turned again to the Smokies and to the possibility of skiing there. It seemed logical, as these mountains not only had good altitude but they lay within a zone of heavy precipitation. This combination, I reasoned, would surely yield plenty of snow. My desire for skiing this particular winter was due partly to the routine existence of an instructor at the Infantry School, and partly to my hope of transferring to the ski troops of the Army. The first would provide a neces-



In going to the Great Smokies, skiers in the South need travel no farther for their sport than do New Yorkers journeying to the White Mountains

sary and welcome interlude, the second would keep me in condition if my hopes were realized.

Gene's letter put me on the alert and I was ready a few weeks later when his telegram from Knoxville announced that heavy snow was in the Smokies. There was no holding back this time. John, a fellow-skier, said, "Let's go", and as those words also expressed my sentiments we feverishly packed a few things, tied our skis on the car, and were on our way to the mountains. Seven hours later we drove into Gatlinburg, Tennessee, the little town which rests snugly against the western base of the Great Smoky Mountains. The lights of the car clearly revealed that there was no snow in Gatlinburg, but the hotel clerk assured us that we would find plenty on the crest of the range. So after waxing our skis and loading the cameras we retired, hoping that the stars were an indication of clear weather on the morrow.

Soon after daybreak we arose and were dismayed to find clouds practically resting on the housetops. Also, a light rain was falling. Not only were the mountains invisible, but it was almost impossible to see across the street.

"No photographs today, and probably no skiing," I muttered pessimistically.

After a quick breakfast we set out on the fourteen-mile ride to Newfound Gap on the summit. Despite Gatlinburg's comparatively low elevation of 1,292 feet, we did not have far to go before encountering snow. Four miles out of town at an elevation of about 2,000 feet, we were cheered to find two or three inches. At 4,000 feet there were six inches, and at Newfound Gap, with an elevation of 5,045 feet, there was a foot of snow. Just as we reached the summit the pall of clouds began to break, and through the rents we caught glimpses of one of the most intensely azure-blue skies it had ever been my pleasure to behold. The symmetrical red spruces which here grow in dense virgin stand were covered with hoarfrost, sparkling like myriads of encrusting diamonds in the fitful daggers of sunlight which pierced the breaks in the swiftly moving canopy of clouds.

We turned off on the road which runs along the crest of the ridge toward Clingmans Dome, and a few minutes later came to the spot beyond which the Park Service snow plow had not cleared the road. The snow was nearly two feet deep, so we parked the car and eagerly took to our skis. The great mass of Clingmans Dome, three miles ahead, was our goal. We were now far above the highest clouds; and as far as the eye could see the snowy spruce and fir-crowned summits of the East's most massive range punched up through a sea of clouds to be framed against the deep blue of the sky above. As we pushed along the smooth surface of the road our progress was frequently punctuated with pauses to take photographs and marvel at the unbelievable beauty of the scene encompassing us on all sides.

To climax our day of skiing we took several short runs from Indian Gap down the fast Chimney Trail. Then, although reluctant to leave these incomparable scenes, we bid farewell to the mountains and headed the sedan toward the south. Less than seven hours later, refreshed and inspired, we were again experiencing the balmy weather of Fort Benning.

The date set for the First Annual Winter Carnival of the Great Smokies Ski Club was February 22. After our delightful trip my enthusiasm was so great and my belief that there would be more snow so certain, that I made arrangements to return for more skiing at that time. Gene would wire if there was snow.

February 21 there was no word from him. Apparently snow conditions were not so good; but as John was planning to visit his parents in Knoxville, I went along hoping that there would be snow in the mountains, at least on the very high places. After spending Saturday night in Knoxville, I put the skis aboard the bus, with many a doubtful glance from the other passengers, and embarked on a chilly morning ride to Gatlinburg, thirty-eight miles distant. As we rode along I intently scanned the impressive side of Mount LeConte, rising almost directly above Gatlinburg, but not a single trace of snow was to be seen.

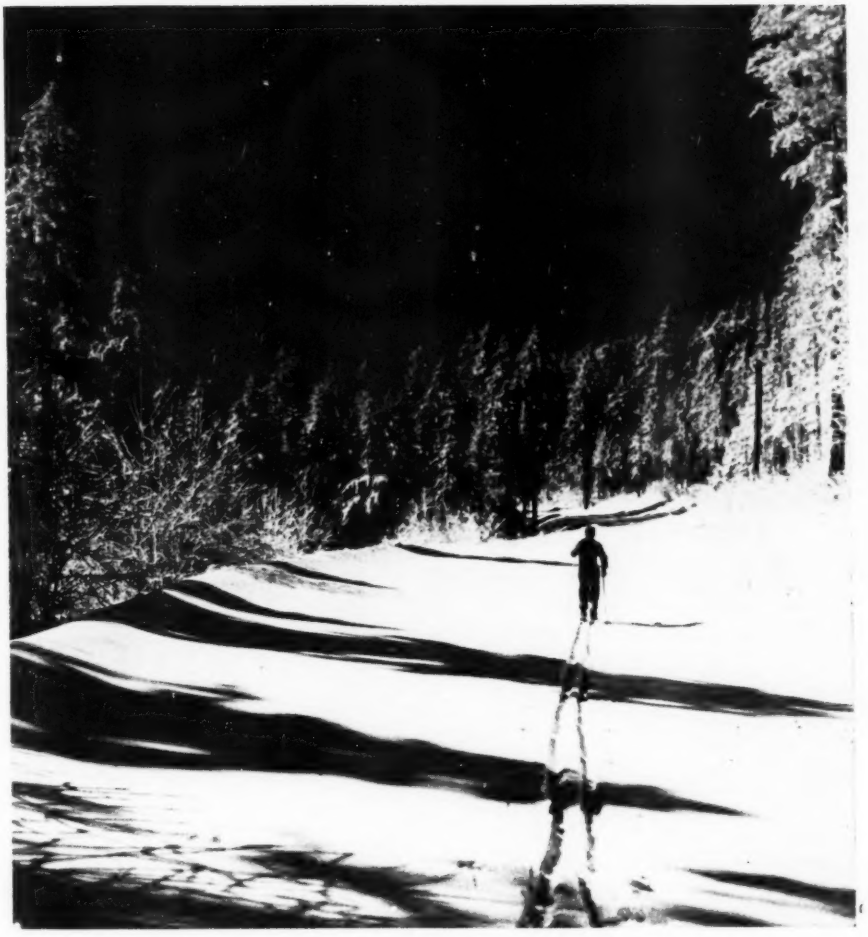
I found a few skiers in town who gave me a lift up to Newfound Gap. This time no snow was encountered until we had almost reached the top. Then scattered patches on the sheltered slopes, and banks along the road began to appear. After reaching the summit and starting toward Clingmans Dome, snow in increasingly larger and more numerous patches appeared and the Dome itself had a continuous cover. Clingmans had not failed us. Until late afternoon I skied in that land where ridge after ridge of lofty unspoiled mountains stretch as far as the eye can see, where the clouds roll up out of hidden valleys and melt away in the blue above.

Back at Fort Benning I again awaited the chance for just one more skiing trip to the Smokies, but March 1 came and went, and still no word from Gene. With the appearance of redbud and peach blossoms and the advent of spring, hope of any more skiing was abandoned. Then on March 6, a telegram from Gene: "Three feet of snow in Smokies. High road closed. Should be open Sunday." My heart took a jump. But, not having requested leave, it was impossible to go at this time. Despite initial disappointment there was a great deal of satisfaction in the realization that it had already been my privilege to enjoy two delightful skiing trips to the Great Smokies. There would come another time. Then, too, there was a certain amount of satisfaction in having learned that it was possible to live in the deep South and yet be within a few hours' drive of a very acceptable skiing area.

So, despite the fact that winter had gone and there probably would be no more skiing trips until after the war, I could not help thinking of the

Smokies, of their innumerable attractions, and of the reasons for their snows.

Although I realized the Great Smoky Mountains had been visited by throngs of summer vacationers, especially since the area had become a national park, I also knew that few sought their grandeur in winter, were intimate with their many outstanding features. It was the secret of the snow and these outstanding features that interested me. My answer came from those enjoyable skiing trips, from Gene's letters, from maps and pamphlets which I had pored over, and from correspondence with the Park Service officials of Great Smoky Mountains National Park.



From February to mid-March — and sometimes in January — skiing snows can be expected in the Smokies at elevations above 5,000 feet

This magnificent mountain range, the crest of which carries the Tennessee-North Carolina boundary for a distance of about seventy miles, not only rises as high above its base as many of our great western ranges, but also contains within its great virgin forests many more species of trees than can be found in any of those mountains, or on any area of similar size, in all of North America.

Because of the altitude, the climate of the higher portions of the Great Smokies is quite similar to that of northern New England and parts of southern Canada. This fact is made strikingly evident by the vegetation. Plants generally regarded as northern species are here common. Virgin forests of red spruce and balsam fir, the southernmost extension of this type of forest in Eastern United States, cover much of the higher areas.

Altitude and precipitation combine to yield comparatively large quantities of snow. From February 1 until mid-March, skiing snows can be expected in many parts of the range. Sometimes they come a month earlier. During the past three winters, from eighty to 120 inches of snow fell on the crest of the ridge between Newfound Gap and Clingmans Dome. A heavy snow in the early part of March, 1942, covered the entire area of Great Smoky Mountains National Park with from eighteen to thirty inches. Although snow falls frequently even at the lower elevations, it generally does not persist for any great length of time except on areas above 5,000 feet. It is in the latter region that snowfalls are heavy and frequent; it is within this region that a continuous snow cover suitable for skiing can be found from February 1 until mid-March; it is here that snowbanks linger into the spring, and buds on trees and other plants remain dormant long after flowers and leaves have brought the vernal season to the region surrounding the mountains.

For thirty-six consecutive miles the crest of the main range is everywhere above 5,000 feet, and at more than a dozen places it exceeds 6,000 feet. Nu-

merous other peaks and ridges rise above the 5,960-foot level. Because of the snow conditions existing in these mountains, the Great Smokies Ski Club was organized at Knoxville in February 1940, with ten members. This organization now has a total of 165 members some of whom, even though they ski regularly, live as far away as Nashville and Atlanta.

Few of the skiers who depart each winter weekend from New York City for skiing in the Adirondacks and White Mountains realize that their compatriots in Atlanta, Georgia, need only make a trip of similar distance to enjoy the same sport—and in the most magnificent primitive area remaining east of the Mississippi. Skiers won't find here the elaborate tows and lifts, the broad open slopes and wide trails and other developments so common in New York and New England ski areas. But they will find the snow, and they can ski over many miles of trails through virgin forests on the crest areas of a mountain range of incomparable beauty and charm. It is a land of real wilderness skiing.

As far as the future of skiing in the Smokies is concerned, it is certain that each year will see steadily increasing numbers of skiers venturing into the area. The T.V.A. and the great defense industries of the Tennessee Valley have attracted large numbers of northerners, many of whom are skiers. The sport is also finding favor with an ever increasing number of local inhabitants. Within a few hours' drive of the region are some of the Southeast's largest cities. Knoxville, fifty-two miles from Newfound Gap; Asheville, eighty-four miles, and Chattanooga, 141 miles, are within easy driving distance. Atlanta, 212 miles away, can also be expected to yield a large number of winter sports enthusiasts. Accommodations for these visitors can be adequately supplied by several fine hotels in Gatlinburg. With increased use of the Great Smokies for skiing will come pressure upon the Park Service for the widening of existing trails and the construction of tows and other facilities.

John H. Cornwell, 3rd

ICE STORM

By Burnham Eaton

This, perhaps, man meant and planned
With his supple mind and heavy hand,

To pattern the stuff for Christmas trees
On such etherealities.

Tinsel and tinfoil, string and glass
Worked by the thumbs of an ill-fed lass,

Or fed and discharged by a loud machine—
Synthetic baubles crystalline

Burden the pine and the Christmas fir,
But green boughs breathe of snows that were,

Of hoar-frost crystals silently spun,
Of ice-drop prisms a-fire with sun.

When every twig is a white fir feather
Fashioned by wind and wintry weather,

Silently made and silently hung
In great, white quietude, among

Sister-crystals on brother-trees—
Perhaps, perhaps it was such as these

We saw and loved, we meant and planned
With our wondering mind, our clumsy hand.

Within Great Smoky Mountains National Park is a wilderness area which compares favorably with any of those found in the western states, for it represents the most rugged of our eastern landscapes and contains the largest and finest area of original eastern forests which have been spared by our civilization. This great primitive crest has already been scarred by a six-mile highway running from Newfound Gap to Clingmans Dome, where it terminates in a huge walled parking overlook. To further mutilate the primitive area by clearing wide ski slopes and trails would be a tragedy.

I like to ski and I am counting on the time when it will be my privilege to go again to the Smokies in winter—not to ride a tow or spend time on a slope cleared in the virgin spruce and balsam, but to travel the tortuous trail of the primitive crest and tumbled spur ridges; to run the trails down into the bottomless canyons; and to view this great diversified wilderness land in all its unspoiled beauty. Let those come with me who love the wilderness that God created, and who would enjoy its inspiring and everchanging grandeur throughout all the year.

MAHOGANY GOLD

By VICTOR W. VON HAGEN

Photographs by the Author

I REMEMBER, when I was very young, being warned not to go near my uncle's table. It was solid mahogany and I might scratch it. That warning, repeated like rote whenever we visited him, made me eye the table with reverent awe. The wood was said to come from some place in the jungles and my mind pictured black slaves, gold, ivory and teak. "Solid mahogany! How wonderful!"

Picture my disillusion when a few years ago on an expedition to the Mosquito Coast, I found the wood so common there that chairs, spoons, doors, floors and even dug-outs were made of solid mahogany. Most of our common northern woods, dressed for working, were more appreciated by the residents on the Mosquito Shore than the rich, fine-grain mahogany which grew in the bush back of their homes. Yet my disillusionment at finding the wood so common on the coast was lessened when I saw the cutters at work felling and logging these tree monarchs in the bush.

The best mahogany grows north of the equator and is principally found along the Caribbean Coast from Panama northward to Florida, and in Cuba and San Domingo. It also grows in northern Colombia and Venezuela and in the upper Amazon of Brazil and Peru. And from the Gold and Ivory Coasts and from Nigeria come African mahogany (*Khaya ivorensis*), a species of true mahogany closely related to that of tropical America. Woods often called in the trade Philippine mahogany are not true mahogany. They usually come from trees of white or red Lauan and from Tanguile.

The true mahogany is a stately tree, often one hundred or 150 feet in height with trunk rising fifty to eighty feet clean of branches. Above, its thick branch-

"Mahogany Gold" — stately trees growing among the great-leafed cohune palms, rosewood and cedar on the Mosquito Coast

The felling of the mahogany giants is an art, —and a spectacle not soon to be forgotten

es, forming splendid crowns, divide into massive arms. The large shiny pinnate leaves take on autumnal tints like our northern trees and give the mahogany an outstanding feature, which makes it possible to locate it in the dank jungles. The tree grows best in well-drained rocky soils, and the wood reflects in its grain the type of habitat in which it has grown.

On the Caribbean coast these soil conditions prevail in a stretch of land beginning in Honduras and extending to Costa Rica and here are vast forests of mahogany. The geological base of the "shore" is limestone with the superficial soil only a meter in depth and this loam, well drained, is the type of soil where fine close - grained mahogany grows in abundance. In the mahogany bush are great-leafed, cohune palms and rosewood, lignum vitae, and cedar—all rare woods—but none of them equal mahogany for its durability, non-splintering properties, and buoyancy. The last is most important, because mahogany and cedar are the only commercial woods in the region that float readily.

Tractors are an innovation in mahogany logging, now beginning to replace the old method of hauling with oxen

We erected our camp near the logging settlement of Mr. Marc Bunnell, an American who had contracted with the government of the Republic of Honduras to cut this valuable wood. From our five months of experience there, I can appreciate the reason for the costliness of the wood. The excessive rains, the disagreeable climate, the miasmic marsh-

es, the long open stretches of the pine ridges, difficulties of transportation, and the unreliability of the workers—sulky, kinky-haired Miskito Indians—make conditions that try men's tempers and add to the cost of mahogany exportation.

My wife and I followed Mr. Bunnell into the bush as he explained the cutting methods. It was February, the beginning of the dry season and the height of the cutting period. After June the rains begin, the forests are flooded and cutting is suspended.

Noise, like the dull rumbling of thunder came to us, then a resounding crash, followed by the shrieks of spider monkeys swinging through the trees in consternation. The spectacle of a falling mahogany tree cannot be easily forgotten. Crashing from its firm base, the broad, thick top branches of the tree tear away all the surrounding foliage, leaving great gaps in the solid jungle wall.

The felling of mahogany is an art and the Miskito Indians are masters of it. They are reputedly the finest ax-men in the Americas, trained from the time of the buccaneer log-cutters to wield the ax. Even among the mahogany workers, the cutter is respected. He is the most skillful and the highest paid of the workers. His work is done in tasks; three trees, eight to fifteen feet in circumference, to fall each day.

As the tree is widely buttressed at the roots, the cutter erects a narrow platform of branches tied with jungle creepers, some distance above the ground. He then mounts this platform where the trunk is consid-

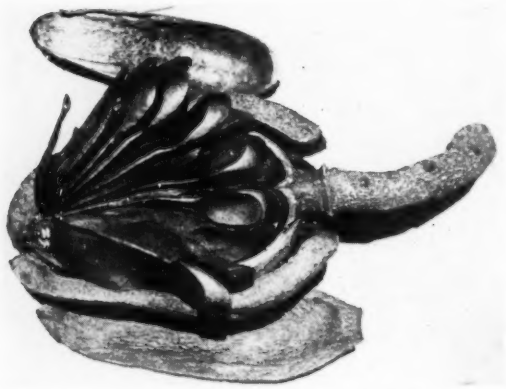
Expert canoemen, the native Indians are ready for any emergency such as this—when a heavy dugout jammed in a difficult place in the river

Native types, and comfortable thatched house of Miskito Indians, up the churning waters of the Warunta River

erably smaller and poising like a dancer, feet outspread, he plies his ax, feeling a tree four feet thick in two hours. He must know how to cut the tree so that when it falls it will not split, and will fall in the position indicated by the captain. The work is allotted by the foreman, known as cruiser.

The foreman of Mr. Bunnell's camp was Tom Davis of Mississippi, for thirty-five years a famed mahogany cruiser on the Coast. A soft speaking southerner, on excellent terms with his Miskito Indian laborers, he speaks their language, *Miskito bila.*

Davis knows whether a tree is of right size to be cut; he precedes the ax-men and their captain marking the trees; he suggests where they should be felled and on what side to cut so that they will not split. Principally, he must know if the tree is free from termites. These insects may live in the trunk of a seemingly sound tree, which when felled reveals their



The seed of "mahogany gold"—this is ***Swietenia*** — the famed wood of the Mosquito Coast

ravages in the heartwood, from the roots to the top branches. Over forty per cent of the trees on the Mosquito Coast are affected, and as the mahogany contractor at that time was paying the government twelve dollars for every tree cut, termites or no termites, the success of the logging enterprise depended on the cruiser's ability to select termite-free trees.

Once the tree is felled, the road gang cuts a path to it wide enough for the tractor to maneuver; they then cut off the branches, saw the trunk into sections, peel off the bark, and pass on to another tree. In order that the mahogany contractor can make a paying business of his operations there must be an average of two trees to the acre.

Tractors are a new innovation in mahogany logging and are beginning to replace the old English freebooter's method of hauling with oxen. Mr. Bunnell was using Diesel tractors on a twenty-four hour schedule, and of course moving ten times the amount of logs formerly hauled by oxen. The logs are pulled on low wooden sleds and hauled to the dump alongside of a small stream. There an "S" shaped spike is put into the cracks to prevent splitting and the logs are stenciled with the owners' initials.

At one time I saw 4,000 logs of mahogany, worth a small fortune, in a narrow limestone creek, and I wondered how they would ever be floated down. I failed to note that the average rainfall on this coast is 200 inches a year, and that in June the rain falls in torrents, the creeks rise, overflow their banks, and the logs float down to the main tributary. The Indians, mounted astride the logs, drive them to the inspiration of raucous, madmen-like yells.

The mahogany (which here is *Swietenia macrophylla* King) flowers in April. The tiny, white panicled flowers are so insignificant that most of the cutters have never observed them. The blossoms give rise to a large fruit, in appearance much like the cinnamon-coloured Sapote. This remains on the tree until it is split by the heat into five parts, liberating the large winged seeds. No definite type of reforestation is practiced, although the trees left standing because of termite infestation or insufficient size seem ample to provide natural seeding.

Mahogany lumbering is an ancient industry dating back to 1500 and probably before. According to George N. Lamb of the Mahogany Association "the earliest surviving use of mahogany is that in a rough hewn cross preserved in the cathedral of San Domingo that bears the legend: *'This is the first sign planted in the center of this field to mark the beginning of this magnificent temple in the year 1514.'* The cathedral, completed in 1550, has much carved mahogany woodwork, some of it considered the finest in the world, still in splendid condition after nearly four centuries in the tropics."

Continuing, Mr. Lamb tells us that "the first large amount of mahogany to approach the shores of Britain still lies off those shores in the hulls of the sixty-six ships of the Spanish Armada that were sunk in 1588. Mahogany ships carried the loot from the Incas and the Aztec back to Spain. That the treasure of Spanish ships and of pirates furnished the first uncertain supplies of mahogany in the North American colonies and in England is borne out by a record from the colonial history of New York: 'A Spanish ship was captured loaded with mahogany, copper, and some canella in October, 1654.'"

During the seventeenth century mahogany became more and more popular in England but it was during the eighteenth century that it reached world fame as a cabinet and furniture wood. Mahogany logging in tropical America increased correspondingly and during the century was the cause of many battles between England and Spain. Mahogany cutters from England, it appears, interspersed their legitimate trade with sallies against the Spanish colonies. Their raids became so profitable that many of them turned buccaneers and spread the fame of mahogany throughout their travels.

During the latter part of the eighteenth century the shores of the Caribbean (*Continuing on page* 575)

Beachgrass, stimulated by incoming sand, holds the dunes in place until more permanent woody or herbaceous plants can be introduced

TREES AGAINST THE WIND

With Other Woody Plants and Grasses, They are Checking the March of Sand Along Oregon's Storm-Swept Coast

By ALBERT ARNST

DURING the summer a section of the Oregon Coast lying north of Seaside became rather violently focused in the minds of the American people. A Jap submarine selected this particular beach area as the target for some fifteen shells, the second such attack on American soil since Pearl Harbor.

But the Clatsop Plains, as the area is known locally, did not need this historic incident to bring it to the attention of many citizens of the Pacific Northwest. Before the first gun was fired in the Pacific it had won a degree of local fame as the scene of successful dune-control operations. On its wind-swept acres the cooperative efforts of landowners with county, state and federal agencies had demonstrated convincingly that migrating sands can be anchored, with vegetation as the chief weapon. More than that, due partly to the success of this demonstration, a hundred miles of Oregon's coast line is destined for a vegetal "face-lifting."

Wandering sand has perplexed civilization for hundreds of years. To combat it, the Pharaohs built huge walls along both sides of the Nile Valley. The Landes area of France made foresters famous for the success with which they used trees in fixing and making productive vast areas of waste sand. They are doing it again today in revegetating the once-stabilized Clatsop Plains with permanent cover—this time so that posterity may enjoy the increasingly important recreational values on this historic stretch of Oregon's coast line.

The Clatsop Plains extend south from the mouth of the Columbia River to the town of Gearhart, and embrace a strip of undulating dunes approximately twenty miles long and a mile and a half wide. The problem area in 1935, when the Soil Conservation Service of the Department of Agriculture was requested by landowners to aid in stabilizing the dunes, included some 20,000 acres. Three thousand of these were moving sand, 5,500 acres were improperly grazed pastures subject to wind erosion, 6,500 acres were farming land, 3,000 acres were merchantable timber, and 1,600 acres were cutover timberland.

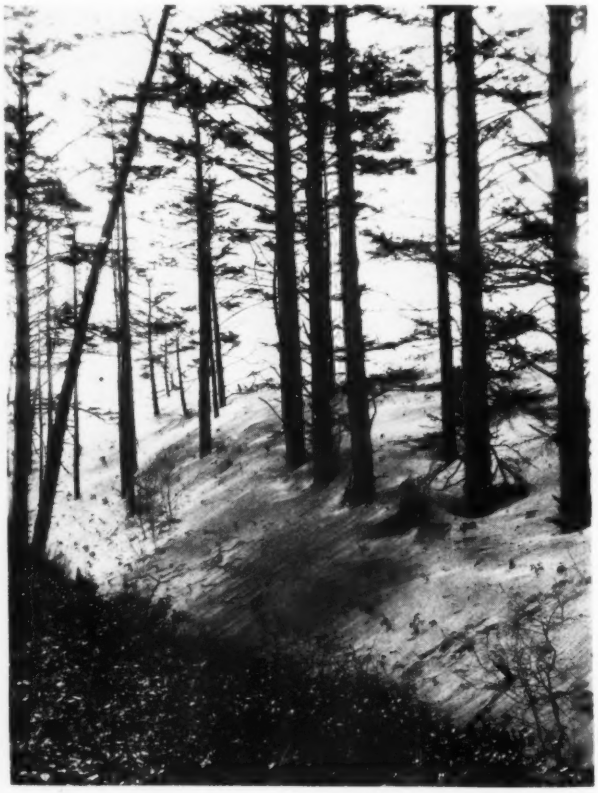
Once a wooded lake on Clatsop Plains, this Sahara-like sand waste—native vegetation blown out or buried—was all that remained in 1935

More than a half century ago the area immediately along the coast was rippling with waves of tall grasses while inland were mature coastal forests of Sitka spruce and western hemlock. Some of the old timers who ran livestock on the plains in the 1880's agree that one could see a man coming through the grass all right, but couldn't tell what color horse he was riding.

The impact of too many hoofs unquestionably helped wear down the grass to raw sand, despite local grazing ordinances. Localized scour spots developed into cancerous movements inland which gradually engulfed trees, sloughed into lakes and climbed over buildings. Old Man River also had a villain's part in this drama of sand against man. The building of the Columbia River jetty, with changing river currents and eddy effects, had produced 2,000 feet of seaward deposition since 1856. This active process was too rapid for natural vegetation to keep pace, and a denuded sand spit had been built far out into the ocean and river mouth.

The normal topography on the original Clatsop Plains had been built up for several centuries in the form of a series of parallel ridges, extending from the front, or littoral dune, back toward the forest in the lee. The littoral dune was pretty well "blown out" in 1935, and many of the parallel inland dunes had extensive eroded gaps. Land and property values threatened by the coursing sands included bulb and farm lands, two military reservations, the Columbia River jetty, a federal highway, river shipping, and several towns and villages, adding up to an investment of around $20,000,000.

Such was the problem when the Soil Conservation Service, in cooperation with the Oregon Agricultural Experiment Station and Extension Service, started work in 1935 with the CCC. Reconstruction of the foredune immediately



Cancerous movements of sand inland began, once the front line of growth was blown out, and scour spots — gradually developing — engulfed the trees

behind the storm tide line was undertaken first, to halt the sand out in front. Two picket-type sand fences, eventually about eight miles long, were used to build up the sand deposit—eight feet the first year and two feet a year thereafter. On this foredune beachgrass was planted.

European beachgrass, *Ammophila arenaria* (*L*) *Link*, long famed in dune control literature, grows vigorously and is intended to serve the dual function of holding sand in place and causing deposition of loose sand blowing in from unstabilized areas. Planted in "hills" spaced from twelve by twelve to eighteen by eighteen inches, with three to five plants in each hill, the grass is propagated by using shoots of a parent plant.

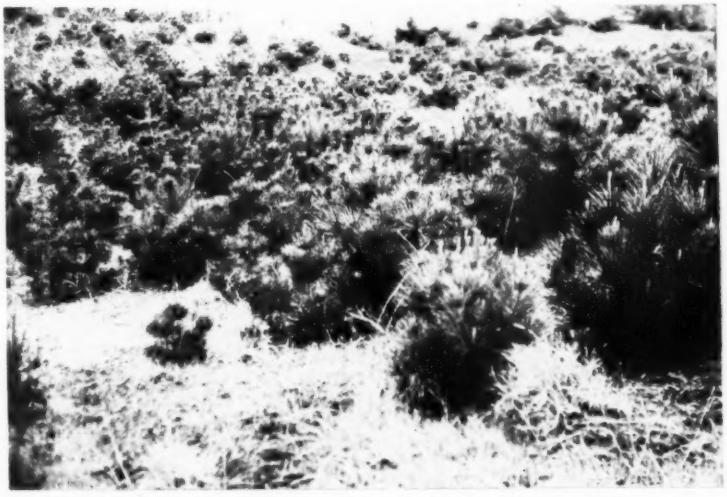
The planting season starts around November 1 and ends in mid-June. Two-man teams can plant approximately 100 pounds of grass a day. Recently, a grass transplanter, useful on certain sites, has been developed, which may accelerate planting enosiderably. Where incoming sand is not sufficient to stimulate beachgrass growth, it may be necessary to use fertilizer as an agent. This has been done on a few selected sites with exceptional response.

Beachgrass is short-lived, is not permanent cover once the sand stops coming in, and is intended primarily to hold the sand until more permanent species can be introduced. Thus, on Clatsop Plains the secondary stage of control employs either herbaceous or woody plants, depending upon such site factors as recommended future land-use, severity of growing conditions, topography and related conditions.

Agronomists plan seedings of grass-legume mixtures on areas not adapted to woody vegetation and, in many instances, in woody-planted areas to speed up the revegetation

(*Continuing on page* 562)

In the reclamation planting, a broad band of Scotch broom was placed at the front edge of the area — other woody plantings extending inland — to right



In such strong five and six year-old planting of evergreens and Scotch broom, deer and small game already find storm refuge

Pines do extremely well as a permanent dune control planting. These fine specimens were planted in 1935-6, spaced six by six feet

WOODEN TOYS

War is Bringing Them Back

By RUTH MILLARD

THE FORESTS of America, already contributing so heavily to the nation's fight for freedom, are responding to another wartime call. With metals and rubber being channeled into war production, toy manufacturers are turning to wood to keep children happy this Christmas. Toys, games and hobby materials, considered essential for child development and family morale, will not be war casualties—thanks to the trees.

There was a time, of course, when wooden toys were plentiful around every youngster's Christmas tree. Indeed, wood has always been used for a great variety of playthings for younger children. But in recent years iron, steel and rubber toys have been in great demand, the result, perhaps, of an era of mechaniza-

Wood in ships, planes and guns is fighting America's war for freedom — even in toyland

tion. Now that these critical materials are needed for war purposes, wood will return to delight children all over the country.

The stocks on toy counters this Christmas will look very much as they have in other years — at least when the toylands first open. The reason for this is that approximately half of the normal supply of playthings made of iron and steel were manufactured before the war emergency placed priorities on metals. Rubber toys, however, have almost entirely disappeared; and shortages in all types of metal playthings are expected to develop very quickly.

The largest use of wood in toyland is now in the "push and pull" toy sector and the construction toy division. New arrivals, in which wood replaces the more critical materials, include miniature telephones, small versions of rifles, pistols, tanks and other equipment used by America's armed forces. There is already a great increase in the number of miniature boats, trains, automobiles and airplanes made of wood. Also, game manufacturers are turning to wood as a substitute for metal and certain types of plastic playing pieces. Doll carriages are being made of wood and there are a variety of wheel toy designs which are constructed almost entirely of wood.

Rubber dolls will be missing from toyland but the composition dolls are available in sufficient force to counteract juvenile heartaches. The nearly unbreakable composition doll—an American invention which virtually has banished the tragedy of the broken doll from childhood — depends on sawdust as one of its important ingredients, and so is, in part, a product of America's forests.

Indeed, wood will be found all through the pattern of toyland this Christmas — a pattern, by the way, which has as its keynote the American way of living. Toy miniatures reproducing American methods of homemaking, art, science, transportation, engineering, building and industrial production will give children in every age group constructive play activities that assure all-around physical, mental and social development. Because all major improvements in toy designs have been initiated in America for more than twenty years, war blockades will have no appreciable effect on 1942 toylands.

As might be expected, a prime interest of youngsters this year will be in America's war program, its fight to preserve its way of life. Fortunately, wood can supply them with toyland counterparts of the newest battleships, submarines and destroyers. Naval training methods are copied by toy sets which include battleships and smaller boats as practice targets. Coast defense forts and anti-aircraft guns are shown in toy models that are designed from United

Sawdust is an important ingredient in the composition doll, an American invention

Pre-fabricated housing projects afford enjoyment while developing master builders

Below—Wooden "push and pull" toys

States equipment and manned by United States soldiers.

Model builders will be able to reproduce every type of American airplane, will have the opportunity to try their skill at constructing aircraft carriers, tanks, anti-aircraft guns and other equipment of war. For the girls, dolls will be shown in Army and Navy uniforms — dolls made in part from sawdust. Doctor and Red Cross nurse sets will be popular.

Pre-fabricated housing will encounter no obstacles in toyland this Christmas, and even youngsters of the toddler age can qualify as master builders. New housing sets featuring interlocking blocks and timbers make it possible even for the very smallest fingers to produce substantial and realistic looking buildings and bridges. Many of these wooden housing construction sets can also be utilized to build different types of wagons, boats and automobiles.

Increased interest in construction sets featuring American history is forecast for Christmas, 1942. Here authentic block houses are constructed of wood

A new line of plastic blocks has been designed to interlock. A covered wagon project is the newest addition to the popular log sets that are used to build historical American forts. Architectural block sets will include Byzantine and Gothic arches, buttresses and trapezoids to give added scope for ambitious young builders. Sliding blocks will be used to construct authentic looking freight trains. One of the new sets gives youngsters between the ages of two and nine an opportunity to reproduce an entire resort villa with shops, garages, a post office, a fire department and other buildings.

Wood will also have an important place in games and hobby materials designed to aid home morale by providing amusement that parents and children can share. A miniature bowling alley that folds away and features true-to-scale construction which calls for a full arm swing, is among the game room items to be available. Badminton, croquet and skeet shooting are some of the sports that have joined table tennis as popular fireside diversions.

Board games that call for quick action are in high favor this year. So are war strategy games featuring principally airplane maneuvers and battleship-submarine conflicts. Oil well drilling, real estate trading and other real life situations are utilized as topical background for game techniques spotlighting opportunities for sudden wealth. The forest will contribute to many of these and similar games both wood and wood pulp, the latter used generally for various types of game cards and cardboard.

Hobbies for all the family in which wood plays an important part include electric woodburning equipment, beadlooms and model building kits.

Thus during the critical war period wood will go far in providing American children with happy, healthy play hours. All of the basic types of toys, games and hobbies which are essential to child education and family morale are ready for distribution as this is written. Shortages, however, due to manufacturing difficulties and labor problems will keep the total volume of toy sales at a substantially lower level than in normal years.

Because of this, wise parents will give more thought than usual to their children's play interests. Infancy, for example, is the time for push and pull toys which encourage the baby to creep or walk; from two to four pedal toys for exercise and building blocks and peg boards to teach little fingers manipulative skill are in order. The hobby age begins at eight.

Whatever the age, toys, games and hobbies are essential to the children of America. Until Victory is won, iron, steel and rubber may disappear from the toy counters. But in their place will be wood, or products of wood. Toyland will not be a war casualty, thanks to the forests of America.

EDITORIAL

NOW IS THE TIME

EVER SINCE the entry of this country into the war, The American Forestry Association has refrained from pressing Congress for passage of legislation unrelated to the military end of defeating our enemies. It has recognized that during an emergency as critical as the present one both the time of Congress and the expenditures of the government should be streamlined to the supreme task of winning the war. This is as it should be.

There is now pending in the Senate, however, a bill that merits the attention of a war-time Congress, not because its purpose has long been recognized as urgent of fulfillment, but because its passage at this time will assure better protection of forest resources now desperately needed in the prosecution of the war. The bill is known as S. 2629. It was recently introduced by Senator McNary at the request of some forty-two state foresters upon whom rests the public responsibility of protecting from fire state and private forests within their respective commonwealths.

The bill is brief and specific. It would amend a section of the Clarke-McNary Act of 1924 to provide that Congress, as it sees fit, *may* appropriate funds for cooperative forest protection up to $9,000,000 annually. The present statutory limitation is $2,500,000 —an authorization limit established by Congress almost twenty years ago when the hazards and problems of forest protection were much less complex and critical than they are today.

For eighteen years the Clarke-McNary Act has been the legislative charter under which the federal government, the states, and private timberland owners have cooperated in guarding from fire the nation's forest wealth outside federal reservations. Protection of the latter is provided for by separate and special appropriations. The intent of the Clarke-McNary Act as originally passed was that the federal government meet up to one-half the cost of forest protection, but the government's help through the years has averaged only twenty-five per cent or less of the cost. The main burden of expense has, with increasing weight, fallen upon the state and private owners, with the result that today only about two-thirds of the country's forest-bearing lands are receiving systematic and organized protection against the destructive forces of fire.

Both the need and justice of the government providing its fair share of protecting the nation's forest wealth outside its own reservations is a matter of common agreement among all agencies—public and private—concerned with forest protection. It forms a prominent plank in the program of the U. S. Forest Service for an all-over national forest program. Speaking for that agency before the Joint Congressional Committee on Forestry in 1940, Earle H. Clapp, acting chief, after stating that his bureau estimated the cost of adequate protection at $18,575,000 annually, declared:

"It is our definite recommendation that the policy be adopted and embodied in an amendment to the Clarke-McNary Law that the federal government finance forest fire cooperation up to fifty per cent of the total cost of the work."

That was before the United States was at war and before the government declared wood a critical material essential to the prosecution of the war. Today the case is many times more urgent. There is a shortage of wood to meet current war demands. The material is in the forest, but it will take time for the government to overcome present bottlenecks of labor shortage and other production obstacles. In the meantime, our forest resources must be well guarded against destruction by forest fire. These hazards have been greatly intensified by dislocated populations and by the possibilities of sabotage by enemies between our shores. The burden of protection is further increased by the shortage and high cost of fire-fighting labor, equipment, and supplies. At best, a dollar today buys only about one-half the forest protection it did in years past.

In the light of this situation, it is timely that the American people charge their minds with the fact that state and private forests comprise two-thirds of all their forest domain; and that upon these forests they are dependent for ninety-five per cent of the wood for which the war is urgently calling. Now is the time, therefore, when all citizens should help provide needed protection of the essential resource by the simple democratic process of petitioning their representatives in both houses of Congress to enact, forthwith, Senator McNary's bill, S. 2629. To gamble the resource with fire at this time when its protection means so much—first, to the continued prosecution of the war and second, to the reconstruction needs to follow—seems both lethargic and shortsighted.

DISCOVERED—AN EVERBEARING HOLLY

By WYMAN S. SMITH

The new holly bears a double crop of berries, retaining one crop while growing another

A NEW everbearing holly whose branches drip with scarlet berries from one year's end to another is growing down Virginia way.

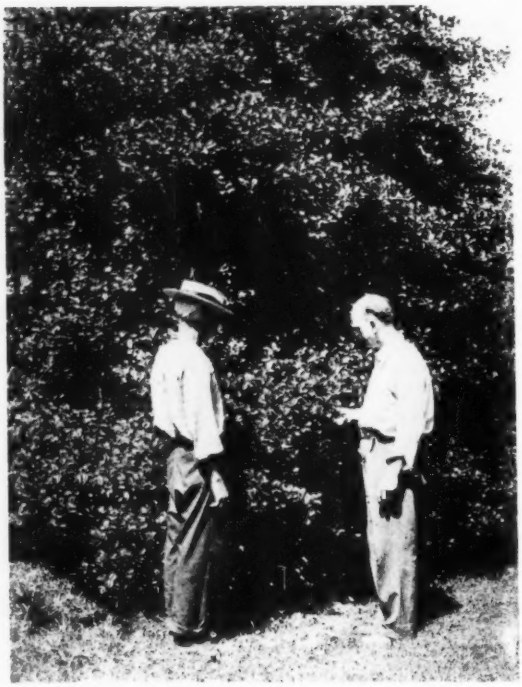
Common holly drops its fruits in late winter or early spring when it prepares to put on a new dress of blossoms and fruits, but this tree (named *Ilex opaca* var. H. L. Russell) bears a double crop of fruit, drops one crop about blossoming time but retains the second while it proceeds to grow another. On the 4th of July it is decorated with last year's scarlet beads and with the young green berries bright as coffee beans which will turn orange and redden as they mature into the fall.

Finding this new holly was, like most strange experiences, unbelievable at first. Poking around the back roads and by-ways of Virginia within a day's drive of the Nation's capital was fun until we decided to try transplanting hollies that we could buy from farmers. Then it became both fun and work; most farmers weren't interested in selling hollies even though we dug them. Following a woods road one Sunday afternoon we came to the home of E. Price Carpenter near Gunston Hall who said that he would be as happy to sell trees as we were to buy them.

"Show me some," I said.

"Look at that one," he announced. "It has berries all year."

It was a large tree, thirty feet tall and impossible to dig, so we were more interested in trees that grew



The first tree was discovered near Gunston Hall, Virginia, on July 4—and named the "firecracker" holly

in the woods. Mr. Carpenter took me on a tour of his timberland that afternoon and we located hollies which could be dug with not too much back-breaking work. Later we repeated our visits to dig hollies.

But on July 4, almost a year later, with a little extra gasoline left in our tank, we decided to celebrate by transplanting another five-foot holly. This time I looked at Mr. Carpenter's dooryard tree more carefully. The young berries at the tips of the branches on the new wood were a gleaming green, but beyond them on the older wood were fruits—scarlet, juicy and plump as in December.

"It's new," I told my wife that day. "I don't believe there's another tree like it in the world."

I was right and wrong, for Mr. Carpenter showed me two other trees, perpetual Christmas trees, "firecracker hollies," that he had dug in the woods thirty years or more ago. "Captain John Smith, no relative of mine, was here," I declared. "George Washington must have ridden through these woods. George Mason certainly did because they are only a mile or so from Gunston Hall which he built on the banks of the Potomac. LaFayette, Von Steuben, Cornwallis—yes, and botanists, plant hunters, foresters—this is practically on a main highway for them."

But the tree books and encyclopedias contained no everbearing holly. It was truly a new tree. W. A. Dayton, chief of the division of dendrology of the U. S. Forest Service, said so; P. L. Ricker of the Bureau of Plant Industry agreed, and Perkins Coville, who wrote the government's bulletin on holly growing, added his affirmation. When I exhibited a spray of holly with red and green berries, botanists, foresters and dendrologists were delighted.

But holly is a variable tree. No sooner had we published information about this one than we began hearing of other everbearing hollies. Ten small trees were found beside the new railroad retirement building in Washington—they had been dug near Roaring Gap, North Carolina. Another large tree was reported on Kenmore Street in Arlington, Virginia. Miss Elizabeth C. White, horticulturist of Whitesbog, New Jersey, reported that Wilfred Wheeler, a nurseryman of Hatchville, Massachusetts, had been propagating a strain of everbearing holly.

All of these appearances are on the bird fly-ways along the Atlantic seaboard, and they indicate a distinct hardiness for the new holly through the holly-growing areas of the nation. In a few years nurserymen should be able to feature this new everbearing holly as an ornamental evergreen that will be a fascinating addition to thousands of dooryards.

U. S. Forest Service

E. Price Carpenter, owner of the everbearing hollies, dug them in his woods thirty years ago for transplanting around his house

Bright as a firecracker, the new holly is named after an old friend and associate, Dean H. L. Russell, formerly of the Wisconsin College of Agriculture and now director of the Wisconsin Alumni Research Foundation. For when I worked with him, he talked John Muir and John Burroughs until their kind of world became exceedingly vivid.

So I'd come to expect something new around a forest corner, but not quite this new, not quite *Ilex opaca* var. H. L. Russell.

Buffalo Wolf of the Plains

THE WAR ON THE WOLF

By STANLEY P. YOUNG

Strychnine, in the Hands of the "Wolfer," or Professional Wolf Poisoner, Finally Brings Canis Lupus to Bay on the Great Plains

In the November issue of AMERICAN FORESTS, Mr. Young reviewed the early history of the costly and bloody North American wolf war which began shortly after the first livestock was brought over from England in 1609. In this, his second and concluding article, the conflict is traced westward over a trail blazed by professional wolf poisoners and enraged stockmen to the last stand of Canis lupus.—Editor.

FOR more than three centuries North American wolves have taken a heavy toll of livestock. George Washington, as previously noted, felt their depredations so keenly that he believed they could not be extirpated. Many years later, Theodore Roosevelt, with his eyes on the great range country of the West, termed the wolf "a veritable scourge to the stockman." And during this period of America's development, from its first to its twenty-sixth president, the costly and bloody North American wolf war raged unabated across the continent.

Driven beyond the Mississippi River not so much by the guns and traps of man as by the destruction of its habitat, the wolf met the trailblazing trapper and stockman at the edge of the prairie. There, also, it met strychnine—in vast quantities. As a ready weapon in the hands of profit-seeking pelt hunters and enraged stockmen, it was this deadly fruit of an East Indian tree, *Nux vomica*, which in the end had much to do with defeating the wolf. It also caused great losses in the ranks of other wildlife, the chief victims being coyotes, foxes and skunks, though many birds, particularly hawks, eagles and ravens, likewise fell before the strychnine onslaught. Indeed, it was through the unrestricted use of this poisonous drug that conservation suffered one of its early blows in the Great Plains region.

The use of strychnine as a means of killing noxious mammals and birds did not, of course, originate with the American trapper or stockman. Its toxic properties in eliminating so-called unwanted animals were known and used in the Old World several decades after the first colonial settlements in North America. According to one authority, *nux vomica*, also known as the Quaker or bachelor button, poison nut, dog button, or vomiting bean, was primarily used in Engand at that time to kill dogs and cats and also "crowes, ravens and other suchlike troublesome birds that by their noyse disquiet mans sleepe or studies."

From the beans of Nux vomica, an East Indian tree, comes strychnine, one of the deadly weapons used against the wolf

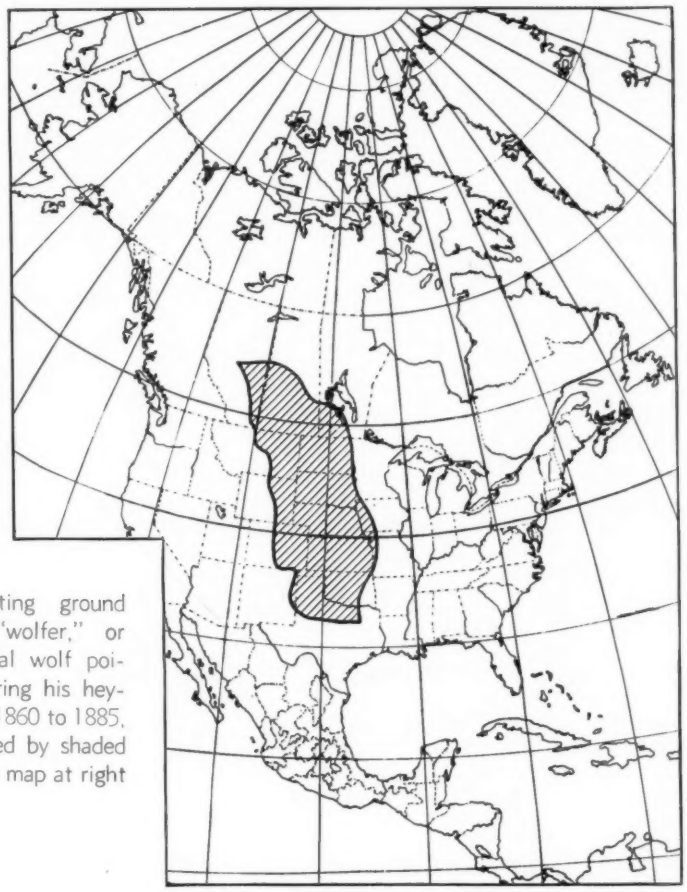
To what extent it was imported and used for poisoning mammals in colonial America is not definitely known. Carney, one of the few authorities to shed light on the subject, believes the drug was used extensively. Another authority writes that in Pennsylvania "many wolves were poisoned by stuffing the hide of a lamb with lard, in which was hidden *nux vomica*." Whatever the extent of its use, it was insignificant when compared

with that phase of the wolf war which began on the edge of the prairie. By 1860 strychnine was being employed in many and devious ways on Canadian as well as United States territorial lands from Texas to the Arctic.

Fish and Wildlife Service

A study in predators — at left, the wolf; at the right, the more persistent coyote

Unlike the early days along the Atlantic seaboard, it was the value of wolf pelts and not the depredations of the animals that in the beginning accounted for the great number killed on the prairie. The trapper, trekking westward ahead of the stockman, turned to wolf skins when the beaver supply diminished and found, much to his surprise, a ready market for them. For the first time in the history of the western fur trade, wolf skins became valuable and in great demand — chiefly for robes and as overcoats for soldiers. With a market thus established, trappers set out to increase their kill, well armed with strychnine, then readily available.



The hunting ground of the "wolfer," or professional wolf poisoner, during his heyday from 1860 to 1885, is indicated by shaded section on map at right

With this began one of the strangest and most lurid chapters in the history of killing mammals such as wolves, not to mention the lesser animals. It seems unlikely that it was ever exceeded in North America unless by the slaughter that took place in the case of the buffalo and the antelope. Not only was the former trapper of beaver enabled to make a fair living at this new vocation, but, from 1860 to 1885 when the killing of wolves was at its peak, he was joined by others. The homesteader tried his hand, as did soldiers mustered out of service at western army posts. Still others were attracted to wolf poisoning because they considered it a thrilling

Fish and Wildlife Service

This killer of livestock, the famous "Custer" wolf of South Dakota, had a price of $500 on his head. He was eventually trapped by a government hunter

game. All were given a free hand in this pursuit for, apparently, no western state or territory forbade the use of strychnine in destroying wild animals.

Some conception of the kills made with strychnine may be found in the volume *The Life and Adventure of George W. Brown.* In this it is recorded that from one poisoned buffalo carcass on the Kansas plains "thirteen big gray wolves, fifteen coyotes and about forty skunks" were taken in one night.

The killing of buffalo to bait *Canis lupus* seems to have been the rule on the prairie. Webb records the story of two conductors of mail from Independence to Santa Fe who did a thriving winter business in taking wolves for their pelts. "They would kill a buffalo," he wrote, "and cut the meat in small pieces, which were scattered in all directions a half mile or so from camp, and so bait the wolves for about two days. Meanwhile, all hands were preparing meat in pieces about two inches square . . . putting a quantity of strychnine in the center. When a sufficient amount was prepared, and the wolves were well baited, they would put out the poisoned meat. One morning after putting out the poison they picked up sixty-four wolves, and none of them over a mile and a half from camp. The proceeds from that winter's hunt were over four thousand dollars."

During the winter of 1861, three soldiers mustered out of the Army in Colorado Territory moved over into Kansas and, with the aid of strychnine, took more than 3,000 wolves, coyotes and swift foxes. The entire kill netted them $2,500—the value of the wolves being $1.25 a pelt, the coyotes seventy-five cents, and the foxes twenty-five cents a skin.

But the bag of these early westerners, great as it may seem, was small when compared with the kill of professional wolf poisoners, better known as "wolfers." These successors to the fur trapper were tough, capable, fearless,—plying their hazardous trade in a manner that was ruthless, spreading death over the width and breadth of the prairie country. Unlike the non-professionals—the ex-soldiers, homesteaders and thrill-seekers—they applied the strychnine sulphate crystals with great efficiency and with considerable more effect. Quite often it was mixed in water to the consistency of loose paste and poured under the skins of slain buffalo or antelope. The results were ghastly. Even birds, such as the junco or horned lark, were killed and used for bait, the super-saturated solution of strychnine inserted beneath the skin along the breast-bone. These morsels of death were then scattered along wolf runways.

Perhaps no better description of this picturesque character of the early West is found than that given by Taylor.

"With a full knowledge of his game," he wrote, "the wolfer riggs up an outfit similar to that of the hunter or the trapper with the exception of traps and baits. In place of these, he supplies himself liberally with strychnine poison. If it was in the autumn, he moved slowly in the wake of a buffalo herd, making open camp, and shooting down a few of the beasts. . . . After ripping them open, saturating their warm blood and intestines with from one to three bottles of strychnine to each carcass . . . he makes a camp in a ravine or coulee and prepares for the morrow.

"With the first glimmer of light in the eastern sky, he rises, makes his fire, and cooks his coffee, then hitches up, if he has a team, or saddles up if with packs, and follows his line to the finish. Around each buffalo carcass will probably be from three to a dozen dead wolves."

The most frequented winter grounds of the professional wolfers on the southern plains were described as along the Republican and Smoky Hill rivers of western Kansas, and "the country about the neighborhood of the Staked Plains in Northern Texas." The northern wolfers found their best grounds "along the Milk Musselshell and Judith rivers, and around the Bear Paw Mountains of Montana, and the Peace River country in Manitoba."

The northern wolfers had the "business well systemized," Taylor wrote, "and while many lost their lives by Indian hostility, and the exposure incident to that kind of life, yet many of them made small fortunes at times, but an infatuation born of the calling held them as in a serpent's charm until some reverse in his affairs left him where he began—in vigorous poverty."

The Indians had an especial antipathy to the wolfers, he stated. "Poisoned wolves and foxes in their dying fits often slobber upon the grass, which becoming sun dried holds its poisonous properties a long time, often causing the death months or even years after of the pony, antelope, buffalo or animals feeding upon it. The Indians losing their stock in this way feel like making reprisals, and often did."

A dramatic example of the wolf kills that took place is given by Fouquet who records visiting near Sun City, Kansas, at the mouth of Turkey Creek, a little cave village of buffalo and wolf hunters that was in existence during 1871. He states: "Not far above this cave village was a road going through the swampy creek valley, about seventy-five yards wide, and this had been artistically and scientifically paved with gray wolf carcasses and I drove over this bone road several times."

Batty, who was an official hunter and taxidermist connected with the Hayden Government Surveys, was of the opinion that these wolfers "are Yankees and half-breeds, and are brave and courageous beyond expression. . . . Remote from civilization, deeply drifted in with snow, they can scarcely travel, and often wonder how life will be sustained for the winter; but their pluck seems to keep them alive until spring dawns on them and their half-starved ponies."

The prowess of the professional wolfer, ably assisted by the non-professional, had by 1885 reduced the wolf population in many prairie regions. Also, there was modification of the former wolf habitat, due chiefly to farming and fencing as the lands came into private ownership. But the stockman had his wolf troubles and for more than a quarter century employed every means at his command, in-

cluding strychnine, to rid the range of this menace.

Indeed, the conflict between the wolf and livestock never ceased after the first herds were brought to Jamestown in 1609. Before the advent of the wolfer, herds being driven along the western trails and livestock raised in the vicinity of the early trading posts and forts, were raided almost daily by the gaunt, savage animals. Eye-witness accounts of these early attacks, these first skirmishes of the western phase of the North American wolf war, are vividly given by early writers.

For example, Theodore Talbert, while in Wyoming in 1843 recorded: "We surprised a pack of large white wolves who had just succeeded in hamstringing a fine Durham bull. The poor fellow fought manfully, but numbers had overpowered him. This sagacious mode by which the wolves disable their prey has been frequently discredited, but here we saw an undoubted proof of its truth."

Audubon, on his voyage up the Missouri River during the same year observed that wolves were "extremely abundant" and "troublesome to the farmer who owned sheep, calves, young goats, or any other stock on which these ravenous beasts fed. . . . They will pursue and kill mules and colts even near a trading post, always selecting the fattest. The number of tracks or rather paths made by the wolves from among and around the hills to that station are almost beyond credibility, and it is curious to observe their sagacity in choosing the shortest course and most favorable ground in travelling."

Edwin Brant, following the immigrant trails to the Far West, made the following observation: "Oxen when footsore or exhausted by fatigue, are left by the immigrants, and immediately become the victims of wolves . . . Domesticated animals unprotected cannot resist the attacks of wolves, urged on as they are by their appetites and conducting their warfare with all the skill of instinct sharpened often by famine. The deer and antelope are compelled frequently to shelter themselves from the attacks of these animals under the strong protection of buffalos and antelope grazing together."

During this same period, Daniel W. Jones, coming east from Salt Lake City, "to render succor and aid" to a party of Mormons that was stranded on the immigrant trail, gives further evidence of early wolf peril. On reaching the party, he discovered that the cattle being driven westward were in poor shape, more than 200 head having already died. Their carcasses led "droves of prairie wolves into our camp," he recorded, "and it was almost impossible to keep them off from the cattle in the daytime . . . Once in the daytime a small bunch was taken and run off in spite of the efforts of the herders to stop them. In fact, it became dangerous to chase these wolves—they were at times almost ready to attack men. We soon found it impossible to save the cattle, and it was decided to kill them, some fifty head."

Bud Dalrymple

The base camp of a twentieth century wolf trapper closely resembled that of the old-time wolf poisoner

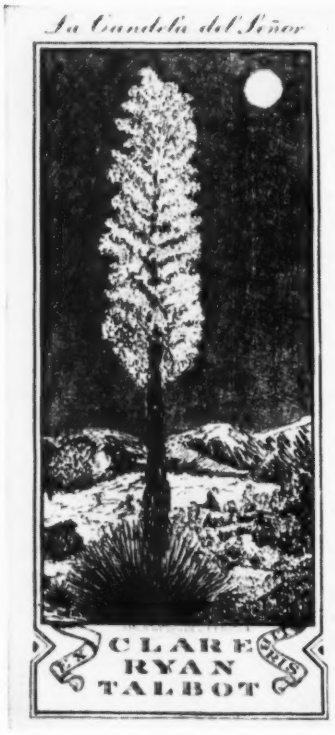
Thus, even in the beginning of the western livestock industry when herds were few and often well guarded, wolves were taking a heavy toll. The professional wolfer, beginning his era around 1860, helped considerably for a quarter century, but during this period the industry became firmly established, reaching out to the far corners of the grass country. Historic cattle trails, among which was that known in plains history as the Chisholm Trail, came into prominence. And with every new drive, with every new range opened up, the wolf, now driven westward and northward, fought back ferociously.

When the buffalo was eliminated from the grassland, bringing the wolf into direct competition with the producers of prairie cattle, it became a war to the bitter end. Every known means at the livestock producer's disposal—guards, (*Continuing on page* 572)

TREES—EX LIBRIS

By

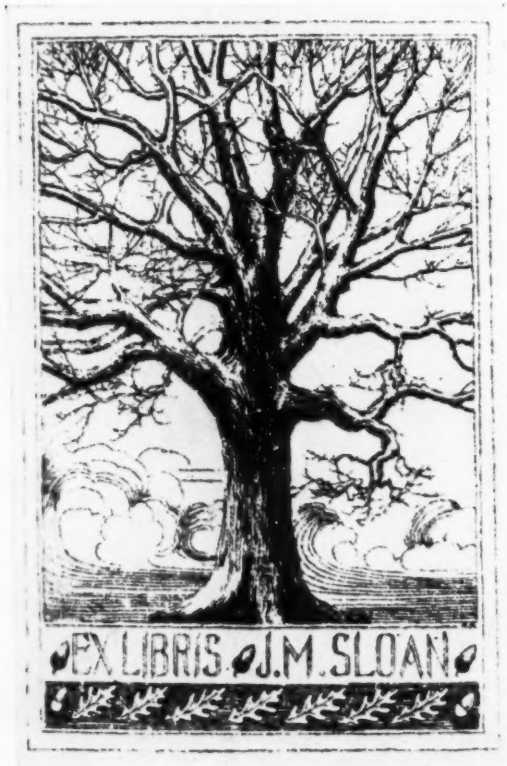
ELEANOR BRADFORD CHURCH



STEMMING from the 13th century,—nearly as old as the printed book itself—the bookplate has had a fascinating and interesting history. The prized and personal possession of the early collector, designs were usually armorial in character and the ornamental bookplate did not come into the picture until several centuries later.

The significant use of trees in bookplate designs is more or less recent. Now they are used often as the principal object of interest or part of the decoration. Trees may be shown in whole,—accurate representations—or they may be adapted to a stylized design. Some booklovers may use trees on their bookplates because their professions are concerned with them, others for sentimental or artistic reasons.

Booklovers often have bookplates which are photographs or drawings of their homes, and trees are usually in the picture. As time goes on the use of trees on bookplates is broadening and so improving, the designs becoming more correct botanically. And we find fewer fanciful representations.



Bookplate fanciers often make a practice of confining and limiting their collection to one subject. They may collect angling plates, medical, garden, library interiors, or canting plates, but no one, so far as the writer can determine, has selected trees. Therefore, the goodly number in her moderate sized collection may prove of interest.

The bookplate of J. M. Sloan is worthy of note because it depicts a white oak with the leaves and acorns below for added adornment. Mr. Sloan is a professional forester—hence the appropriateness of the subject. He states that the tree is botanically correct.

Evergreens seem to lend themselves to artistic bookplate design and so are found on many plates. The bookplate of Helen Mooney Fenton shows the pine-clad mountainous landscape of California and evinces fine artistry. It was engraved by James Webb, noted bookplate artist.

Several photographic bookplates in the writer's collection depict the owner's home with evergreens surrounding it. Stanford University Library has an evergreen standing against a background of clouds on one of its bookplates used in the Hopkins Marine Station Library.

The emblem of the United States Forest Service,

on which is a small tree of inconspicuous design, is used on the bookplate in the library of the Forest Products Laboratory at Madison, Wisconsin.

Gnarled oaks, slender beeches, palms, orange trees, maples, hemlocks and pines, elms and sycamores have been used by bookplate artists with an eye always to the beauty, symmetry and peculiar characteristics of each variety.

The bookplate of Clare Ryan Talbot, who resides in California and likes the native yucca, was also designed by James Webb. It was called by early explorers "*La candela del Señor*" or "The candle of the Lord." Hence the motto on the bookplate.

Another of Mr. Webb's engraved bookplates is used by the University of Southern California. On this, the church fathers stand and sit respectively beneath sycamore trees in a characteristic California landscape.

Again, evidence often suggests that the owner who takes an interest in white birches probably has hailed from northern New England, where this tree is familiarly found.

The Edna Huntington bookplate, shown above, has a strong pine as its principal object of interest.

If trees are your profession or your hobby, incorporate them on your bookplate and so make it one of appropriate and unique design.

YOUR SHADE TREES:

By P. P. PIRONE

THEY TOO MUST HELP WIN THE WAR

AT THIS writing, there is absolutely no doubt that shade tree practices "as usual" are definitely out for the year 1943. In view of the many drastic changes that already have been made in our way of life, this observation should not surprise anyone.

Shade tree care for 1943, then, resolves itself into a pattern that will require us to get along with what materials are allowed and with practices that will least hinder our primary objective—that of winning the war.

Fertilizers for Trees

Within the past three months a number of rulings have been made in Washington that have a direct bearing on many shade tree practices. Perhaps the outstanding one is the War Production Board Conservation Order No. M-231, Part 3080, which deals with the use of chemical fertilizers. This order, effective September 12, 1942, states that "no fertilizer manufacturer, dealer or agent shall deliver any chemical fertilizer containing chemical nitrogen (ammonium sulfate, sodium nitrate, calcium cyanamid, urea, etc.) for use on lawns, golf courses, parks, cemeteries, roadsides or non-commercial plantings of trees, shrubs or flowers, and no person, including fertilizer manufacturers, dealers or agents, shall use any chemical fertilizer containing nitrogen for any such purposes. The restriction provided for in this paragraph shall apply to the use by any landscape gardener or nurseryman of any chemical nitrogen on trees, shrubs or flowers planted on the premises of his customers."

It is well to stress the fact that the order does not prohibit the use of all fertilizers on shade trees. It was drawn up to conserve chemical nitrogen, which is used in the manufacture of explosives and in the growing of important food crops. Substitutes containing organic sources of nitrogen alone, such as soybean meal, which is satisfactory for evergreen trees, or mixed fertilizers containing organic nitrogen, superphosphate and potash may be used for shade trees.

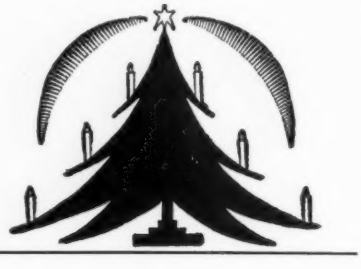
Prof. L. C. Chadwick, of Ohio State University, recently wrote in *Nursery Notes:*

"Where limited quantities of ammonium sulfate or other inorganic nitrogen carriers or a complete fertilizer like 10-6-4 (containing inorganic nitrogen) is on hand, it is suggested that these materials be used sparingly. For example, equal parts of 10-6-4 and 0-14-7 will give approximately a 5-10-5 fertilizer. Two hundred pounds ammonium sulfate, 1500 pounds soybean meal, 170 pounds 20 per cent superphosphate and 130 pounds of muriate of potash will give a ton of approximately a 7-4-4 fertilizer."

The following formulae, suggested by Prof. Chadwick, can be prepared by using organic carriers of nitrogen and should be suitable for shrubs and trees:

Formula A—
1230 lbs. soybean meal
634 lbs. 20 per cent superphosphate
136 lbs. muriate of potash

2000 lbs., approximately 4-8-4 fertilizer.



Formula B—
1840 lbs. high nitrogen tankage
160 lbs. muriate of potash

2000 lbs., approximately 8-6-4 fertilizer.

All the ingredients of these formulae should be available, although the high-grade tankage suggested in Formula B will probably be less so and will cost more than soybean meal because of its increased nutrient content.

Tree owners and arborists desiring help in compounding suitable formulae with materials they have on hand or with materials that can be purchased in their territory, should write to their respective state agricultural experiment stations.

Drastic as the new W.P.B. order may appear, the curtailment will not be too great, since many tree fertilizers, even in peacetime, contained a goodly amount of the type of nitrogen source the use of which is not permissible. Because they are more slowly available sources of nitrogen, organic fertilizers produce a more lasting effect than the inorganic. Prof. Chadwick feels that it is doubtful that ornamental plants will suffer from lack of nutrients, provided a complete fertilizer carrying organic nitrogen is applied in adequate quantities and at timely periods.

Among other tree practices that probably will be sharply curtailed in 1943 is that of spraying for insect and disease control. Here, too, some of the basic materials used in insecticides and fungicides, as well as apparatus needed to apply them properly, are of prime importance in war production. By now, the need for conservation of materials should be so well embedded in the minds of all Americans, that little more need be added to the several suggestions made in the June, 1942, issue of AMERICAN FORESTS in our article "Wartime Spraying Practices."

Other Tree Equipment

It now appears that a shortage of a number of other materials commonly used to maintain trees in proper condition will be even greater than that of spraying materials and apparatus. Among these are cables, bolts, tools, other steel products, and rope—all materials required for general tree work, but even more essential to the war effort. It may even be possible that some phases of tree work, such as bracing and cabling, may have to be discontinued completely except where the safety of human life is imperiled.

From every angle, it appears that tree maintenance practices for 1943 and possibly for the duration of the war will be sharply curtailed, at least as much as, if not more than, many of our other peacetime ways of life.

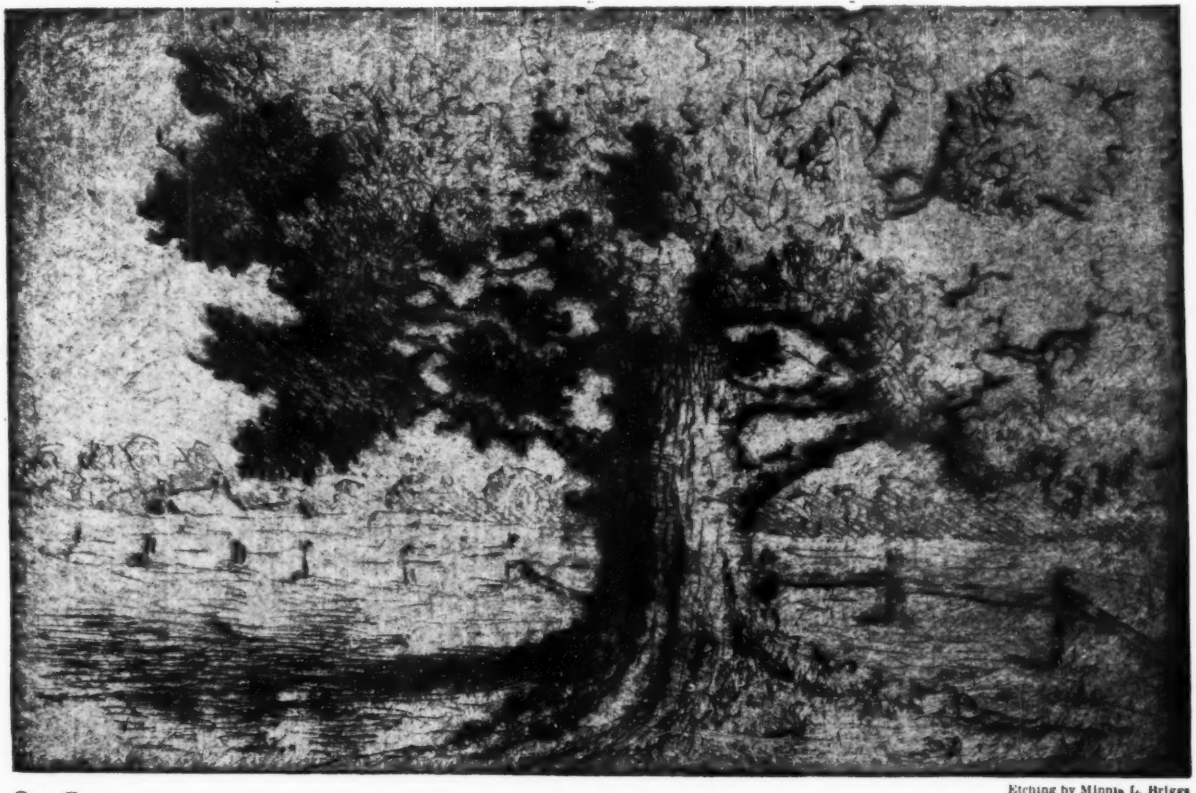
THE QUERY CORNER

QUESTION: I have been informed that calomel has proved of decided help to trees. It is alleged to have revitalized *Magnolia grandiflora* and *Cedrus deodara*. What is your opinion?—J. D. M., Jr., South Carolina.

ANSWER: Calomel has been used as a protectant against certain parasite fungi and bacteria, especially in connection with diseases on narcissus bulbs and the Dollar spot disease on golf courses. Calomel has also been used with some success against the crown gall disease of peach trees in the nursery and in the control of gladiolus "yellows." However, in the case of the peach trees, there was no stimulating or invigorating effect due to the calomel. I am unacquainted with its possible stimulating effect upon magnolia or Deodar cedar.

QUESTION: Have you any remedy for large scale injury to green ash by borers other than cutting them down and burning them up? It begins to look as though the native groves in this northwest region, which are scarce indeed, as well as those planted some years ago are doomed in this respect.—C. W. B., North Dakota.

ANSWER: There are two common species of borers in green ash in the Great Plains States, the carpenter worm (*Prionoxystus robiniae* Peck) and a round-headed borer (*Tylonatus bimaculatus* Hold). These borers ordinarily work in weakened or dying trees and are generally not the primary cause of the decadence of the green ash plantings. Anything that can be done to improve the vigor of the groves will decrease the borer damage. The burning of the old, heavily infested trees will help to decrease borer injury in the remaining trees. It is possible to kill the carpenter worm, distinguished by the fact that it pushes out sawdust or borings from its holes, by injecting a few drops of carbon disulphide into its galleries using an oil can and then plugging the opening tightly with wet clay or putty. Carbon disulphide is very inflammable and should be handled with care. Further information can be secured from United States Department of Agriculture Circular No. 344, "Causes of Decadence in the Old Groves of North Dakota," by Harold F. Scholz, and Forest Entomology Brief 76, "Borers in Shade Trees and Hardy Shrubs," by W. Middleton.



OLD CEDAR

Etching by Minnie L. Briggs

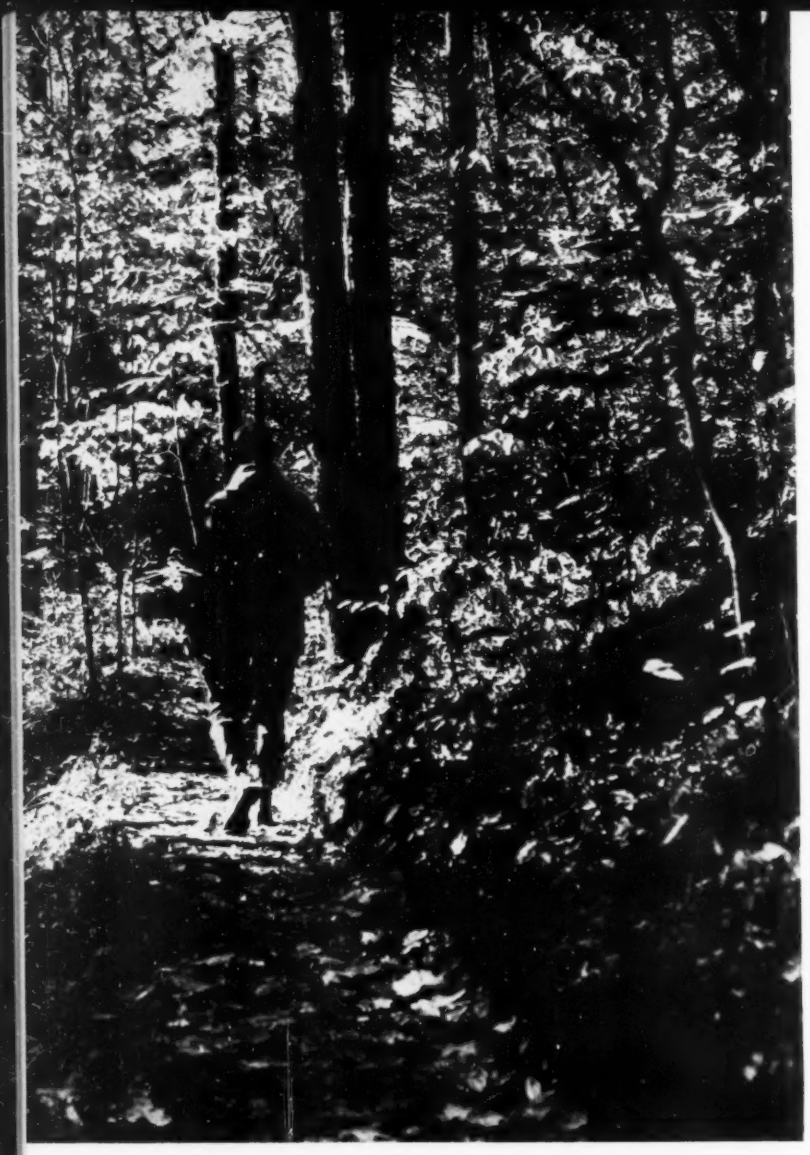
Old Fence Line Cedar

Old fence line cedar
Centuries old I know . . . .
Gnarled and bent and twisted
From rain and wind and snow.

Your ever swaying masses
Flash the gay sunbeams,
Catch the shadows of the night
To weave them into dreams.

No one knows your language,
No one questions why
You sing or sob or whisper
Or softly, gently sigh.

—MINNIE BRIGGS.



COMMON CLAY AGAIN

By CHARLES ELLIOTT

I AM rediscovering the earth! The revelation is a pleasant one, and profitable. I have changed rubber for leather again, carbon monoxide for clean air, pavement for grass and fertile soil. I'm learning all over again how to walk, what to look for while I'm walking. Somehow, during the change from a normal human to an automaniac, I had forgotten.

This transition from wheels to number nines has slowed me down. When I was catapulting from one appointment to another, I never had a moment to spare. I always started late. Traffic got in my way; the red lights were always red; I usually got there late. I walk now and get to my appointments on time, and in much better humor.

Through new eyes I am seeing the route between my home and my office. It lies along a main street and highway, for two miles. I have found that by going a block out of the way, I may stroll down an avenue of trees which almost touch leaves across the street. In the spring I observed a robin's nest on a limb I could almost reach. I found a defense stamp someone had dropped. That find was expensive and satisfactory: I started a new book of defense stamps.

On Sunday afternoon, I no longer help jam the highways with my own collection of tin and steel and rubber. I walk, and I find a great many of my friends with the same idea. I can walk a mile in one direction from my home and be in a park. Within a mile in the other direction is an uninhabited stretch of woods. My young son and I are becoming acquainted with those woods. At the far edge there is a heap of rocks under which a fox has built a den. We know it is inhabited, because on the outside we found the fresh remains of a rabbit. At one corner of the forest stands a dead tree, in which a sparrow hawk has built her nest. The woods are filled with katydids, tree frogs, rabbit beds, nests of many birds—but we have to search to find them. That search occupies many hours on a Sunday afternoon, and we come home refreshed in body, revived mentally and spiritually.

I no longer pound the highway to distant trout pools or to swamps where the big bass lie. Within a mile of my home a little creek slices through the woods. The water has gouged out holes under shady banks, the rocks create riffles and pools. The bream in that little creek have been overlooked by even the small boys in the neighborhood. And they've never seen an artificial fly! Sometimes a bass, weighing a pound or more, works his way up from the river. Two or three times my light fly rod has taken an awful beating by one of those wild bass hooked on the other end.

Three miles away lies a swamp where the mallards come in to roost. Before the fury which has enveloped the world, I rode down there in late afternoon on rubber and gasoline, which are now priceless, and brought back a brace of ducks. This year I walk instead of ride. I have learned that it's much more fun to walk. Sometimes I kick up a rabbit or a covey of quail on the way. I always come over Deering Hill on my way back home. I stop and watch the sunset and then the shadows fade into total darkness. And I come home in a world of blacked-out fairy figures silhouetted against the stars.

I have learned again how sweet and clean and invigorating the wind can be. Once more I am learning to appreciate the sun. Once, long years ago, when I was a gawky head-ache to my high school teachers, I ran a trap line down the creek for four or five miles below my house. In the frigid, mid-winter mornings, I leapt out of bed at five o'clock, pulled on my dad's boots and my heavy coat and slipped out the back door with my gun. From a hilltop in Lunsford's pasture, I saw the dawn blaze in the east. I saw the sun come surging upward with its first yellow light. I don't believe anyone can ever really know the sun until they feel its first warm rays against frozen hands and cheeks. I came back to a breakfast table perfumed and bright with eggs and ham and hot biscuits. For many years that appetite has been gone.

(*Continuing on page* 575)

Article of the Month

WOOD FOR OIL HEATERS

By EDGAR L. HEERMANCE

Each month AMERICAN FORESTS presents as a special feature an article which has appeared elsewhere and which, in the judgment of the editors, is of outstanding interest from the standpoint of the information it contains. WOOD FOR OIL HEATERS, by Edgar L. Heermance, secretary of the Connecticut Forest and Park Association, has been selected for December because it suggests a practical means of substituting wood for oil in the heating of homes—a very vital consideration in the nation's war effort this winter. Mr. Heermance's article is condensed and reprinted from the "Eastern States Cooperator" for December.

WHEN homeowners have an oil burner and a supply of wood is available, can a way be found by which they may substitute wood for oil? That was the question faced last June by the Northeastern Wood Utilization Council. For six years, Connecticut foresters had been carrying on research to discover improved methods of burning wood. Similar work had been going forward in New Hampshire and Vermont. The fuel crisis brought these research men together to see what could be accomplished by exchanging ideas and coordinating effort.

Any idea of developing a new furnace, of course, was out for the duration, even if there had been time to do so. The existing oil burner with its piping connections had to be utilized. That meant constructing a new wood-burning unit, connected with the regular furnace, perhaps through the ash pit door. Instead of burning in the old fashioned way, the wood must be distilled into gas, a method with which some of these agencies had been experimenting. Furthermore, the new unit would have to be constructed out of fire brick and other non-strategic materials, and simple enough to be built by any good mechanic. Could something of the sort be worked out?

The Engineering Experiment Station of the University of New Hampshire made the first advance. R. A. Caughey built an auxiliary wood-burning unit entirely out of fire brick. This demonstrated that wood could be used to keep up steam in a domestic furnace. The ball was then passed to the Connecticut Agricultural Experiment Station where Henry W. Hicock had become interested in wood distillation through his development of a portable charcoal kiln. Professor Lauren E. Seeley of Yale University, designer of the Char-Wood Heater, cooperated in the project. Working at top speed throughout the summer, these men and their assistants made repeated tests for temperature and gas composition, to discover just what takes place in the wood distillation process under various conditions. A unit was constructed in the laboratory to find the most efficient method of operation. It was not enough to turn wood into gas, which would be drawn into the furnace to be burned after admitting secondary air. The whole process had to be kept under control in such a way that a high temperature could be maintained in the furnace when needed, or the furnace could be run at a low temperature without depositing soot and creosote.

Today, the new wood-burning unit for oil heaters is an accomplished fact. Any shivering homeowner, with a convertible furnace and an assured wood supply can build one. His first step should be to write the Connecticut Agricultural Experiment Station, P. O. Box 1106, New Haven, Connecticut, for a bulletin describing its construction and operation. In this, diagrams show the successive courses of brick, with the position of each single brick. Besides fire brick, certain parts are molded out of refractory material in powdered form, and this is also described and diagramed. The only metal parts required are the cast-iron door and frame, which may be secured through the Connecticut Forest and Park Association, P. O. Box 1577, New Haven, Connecticut, if present negotiations for priorities and manufacture are successfully completed, as is expected.

After starting a fire in the new unit in the ordinary way, the large brick box, for that is what it is, is filled with wood. It holds about one-tenth of a cord, in two-foot lengths. The wood is carried by gravity to the combustion zone of glowing charcoal, where the gases of which wood is composed are set free. These gases, mixed with a small additional amount of pre-heated air, are carried into the fire-pot of the oil furnace, where they burn at high temperature.

An ingenious slide draft regulates the rate at which air is admitted through the three vents at the bottom of the brick box. Thus it is possible to run the furnace at any desired temperature. One merely sets the slide draft, and no further attention is required until it is necessary to fill up the fuel magazine. In cold weather, the charge will keep the furnace in a large house running full blast for eight hours, and at moderate temperature for a much longer period. For a smaller furnace, the charge should last from twelve to twenty-four hours, depending on the weather. The combustion efficiency is very high—that is, the proportion of gases that are consumed instead of passing up the chimney is very much higher than in the ordinary wood furnace or stove.

Green wood can be burned, in fact is recommended, which is a distinct advantage. The best results are obtained by using sticks not larger than five or six inches in diameter. There is some loss of heat in the cellar through radiation, though the brick box may be partially insulated. It should be remembered that this is an emergency unit, to meet immediate needs. In the wood-burning furnace of the future, the distillation will take place in the furnace itself, rather than in a separate unit, and this loss of heat through radiation will be avoided.

A cord of the better hardwoods will give as much heat as a ton of coal or 200 gallons of oil. Every cord of wood that can be burned will relieve the pressure on other fuels required for war production. The use of local fuel releases freight cars and locomotives that are needed to defeat the Germans and the Japanese. Axes will help to beat the Axis.

TREES AGAINST THE WIND

(*Continued from page* 545)

process. One of the requirements of secondary vegetation is that it supply nitrogen to the site, so that subsequent successions of herbaceous and woody species will thrive. Leguminous plants fully meet this requirement.

Native species of legumes and grasses used successfully include seashore bluegrass, seashore lupine, purple beach pea and native red fescue. The first two are seeded in mixture not later than two years after the initial grass plantings, and the others not later than three years. Clover and bent grasses are used for climax cover. These grasses usually are drilled in the fall, because broadcast seeding is not too effective unless a heavy mulch is present.

Sod formed of these grass species and a few additional woody plants give an erosion-resisting vegetal cover capable of withstanding only limited usage, which precludes normal pasturage and intensified recreational use. Therefore, it seemed logical to land-use planning technicians that livestock should be excluded and people and automobiles confined to protected areas, because they soon broke through sod of critical sites. Where woody cover originally was considered undesirable because of its unpalatability to hungry livestock, the same cover now seemed a panacea, because it was enjoyed by picnickers but was not relished by wandering sheep and cattle.

And so shrubs and trees began a planned march oceanward. Soil Conservation Service foresters had to determine the adaptability of woody plants on frontal dune areas, but the success attained after several years of experimentation horsed and unhorsed ecological prophets and permitted the formulation of tested planting schemes with proved species.

Almost without exception, woody plantings now hold the rougher topography, where recreational use will be dominant. Protective belt plantings also are being placed as a buffer along critical edges and on sites needing special protection for roads, buildings, structures and existing vegetation. Belt plantings, where used, are placed to form an interlacing gridiron of live vegetation that lifts winter winds of seventy-mile velocity from the sand's surface and dissipates their scouring blasts.

Secondary woody plantings can be established in one-year-old beachgrass plantings on more protected sites, but a two-year-old grass stand is preferable. Secondary grass and legume seedings are not essential for woody plantings, but their presence is beneficial.

The more extensive secondary woody plantings on Clatsop Plains have been placed inland and parallel to the ocean, with the plan in mind to advance them oceanward as frontal sites become progressively favorable through beachgrass and grass-legume successions. The extreme front edge of woody plantings will be the first high foredune, however, generally a quarter mile or more inland from high tide line and better protected from storms and high water. The lower foredune area in front will be kept in primary and secondary grasses, because they are more effective in stopping incoming sands.

On these back areas, a scheme of stripping has been used. The typical plan includes a ten- to thirty-row band several hundred feet in front of the protected area and parallel to the ocean, using close spacing of plants, generally eighteen inches in the row and two feet between rows. Back of this front band, succeeding parallel bands have been planted about one hundred feet apart until the native and stabilized vegetation farther inland is reached. Narrower bands, six to ten rows wide, are placed at right angles to those principal bands, intersecting them at about sixty-foot intervals and creating a series of rectangles over the planted area.

Recently, this stripping scheme has been modified slightly to distribute more uniformly the nitrogen required for the succeeding conifer plantings, which may assume a yellowish and stunted appearance because of its lack.

The principal band, at least fifteen rows wide, is placed at the oceanward, or front, edge of the area to be dedicated to trees and shrubs, parallel to the beach line. If a vulnerable back ridge or raw edge of native cover needs protection, a second main band may be planted inland. But instead of stripping the field with intersecting broom bands, as was done previously, the area requiring woody plantings is block-planted on a uniform spacing throughout, generally a minimum of six by six feet. The pattern thus becomes a wide band in front, backed up inland by a continuous planting of regularly-spaced plants which merge either into the meandering edge of the native cover or into a second planted band.

Scotch broom, *Cytisus scoparius (L) Link.*, has been found highly successful as the secondary plant used in the plan outlined. Held in disrespect by agriculturists who class it as a weed on some kinds of land, but revered by tourists and recreationists for its masses of golden blooms in early spring, the plant is intolerant and tends to disappear in the shade of a mature forest. In the forestry program, it is used as a nurse crop to prepare the site for pines and other conifers, because it belongs to the bean family and adds nitrogen to the soil. Its evergreen habit is a special asset in protecting vulnerable sand areas from winter scouring.

The plant is one-year-old nursery-grown stock and is used at the rate of from 700 to 1,200 an acre in the uniform block plantings, and from 1,000 to 1,500 plants for 100 linear feet of band planting. As much as five feet of height growth has been made in one season by this sand-lover; and the punishment it survives from wind, storm and sand is beyond belief. Runner-up for honors may be tree lupine, *Lupinus arboreus Sims,* which must be spot seeded and seems to be well adapted to frontal dune work.

Biologists, too, can find satisfaction in using Scotch broom. Five and six-year-old plantings that reach heights of twelve feet in almost impenetrable hedges provide storm refuge for such creatures as the Columbia blacktail deer and small game. This is a bonus contribution to the recreational value of the plains of the future.

Trees can be planted when the Scotch broom is a year old—though it is preferable to wait two seasons—either in the open spaces between the regularly spaced broom in block plantings or within the rectangles formed by intersecting broom bands. The block system is favored because of the more even nitrogen distribution, but planting of broom uniformly within the rectangles makes these sites favorable for trees.

Conifers are used because they provide year-round protection. The evergreens follow the shrubs in advancing toward frontal dunes, but it is not planned to extend them as far oceanward, for the shrubs have less height to expose to sweeping winds. The conifers probably never will attain full tree height or commercial development, as the ravages of storms will keep them shorter-boled and more gnarled, which should be an esthetic attraction for artistically-minded recreationists. The trees will help to deflect winds and bind sands, and will create a more diversified cover type.

The native shore pine, *Pinus contorta London,* has proved more adapted and will be used almost exclusively in future tree plantings. Other pines planted have been Scots, Austrian, mountain, cluster, pitch and jack. Of these, cluster pine has done well, as has the Scots pine in some sites.

It requires several years for pines to get "their feet in the ground," after which they exhibit vigorous and steady growth. They will not do well in sites where the nurse plant, Scotch broom, has not been planted in sufficient proximity or density.

Minor use has been made of deciduous species in protected sites, such as lake

(*Continuing on page* 576)

WOMEN WOOD AND WAR!

DOING THE JOB . . .
and doing it well!

The lumber mills of the great Northwest can be proud of the women who have joined-up in the battle of production, for they are making a magnificent contribution to the solution of the problem created by the shortage of man power.

With courage, determination and an eagerness to learn the tasks assigned to them, the women of the Northwest are helping to maintain at high levels the flow of lumber products to meet the tremendous demands of the Using Services of the United Nations.

In the foreground, Fannie Randa, with pickaroon in hand, is straightening lumber. ***At upper right,*** Helen Juruakainen is working at a sorting table; ***below*** her Elno Olila is operating a machine in a planing mill.

All over the nation women are working at jobs which a few months ago were strange to them. No more valiant record has been established than that of the women of the lumber industry who are engaged in the vital production of Wood for War. Copyright 1942, Weyerhaeuser Sales Co.

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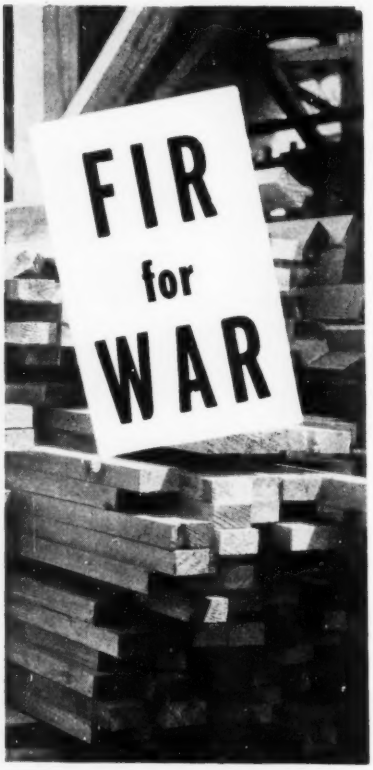

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WILL THERE BE CHRISTMAS TREES?

October Survey Points to Reduced Supply —Depending on Rubber, Gasoline and Shipping Space When Yuletide Rolls Around

UPON the nation's wartime transportation facilities rests the answer to the 1942 Christmas tree riddle. A shortage of labor comes into the picture, but in the main the answers as to whether or not evergreens will cheer American homes this Yuletide will be found in terms of rubber, gasoline and shipping space.

In October the situation was confused. Dealers and foresters alike were uncertain as to the availability of adequate trucking to haul the trees out of the woods after gasoline rationing and other restrictions become effective in mid-November. Nor was the rail situation much clearer. Christmas tree dealers have been notified by the Office of Defense Transportation that all types of open or flat cars, of the kinds generally used, will not be available. Trees may be shipped, however, in boxcars, but to what extent and at what time was not made clear. The labor situation—that is, the availability of men to harvest the trees in the woods—was particularly critical in some regions, although others reported no material manpower shortage.

There was even divided opinion as to the 1942 Christmas tree market. Some dealers believe the demand will be off at least twenty-five per cent, due chiefly to war disruptions in the home. On the other hand, there are dealers who reason that high wages, especially around the war industry centers, will greatly enhance the demand for trees.

From out of this confusion, the best estimates—and these are subject to quick change—are that (1) Christmas trees, though scarce in some regions, will be available; (2) that they will be more expensive than in previous years, and (3) that preferred trees, such as fir and spruce, may give way in many communities to pines, cedars and other home-grown species.

Two of the largest Christmas tree dealers in the country, operating from Maine to Washington as well as in Canada, are beginning their harvest as this is written. One is cutting for a consumer market estimated to be twenty-five per cent under 1941. The other is planning to ship the usual number of trees, hopeful that "the government will consider our industry as seasonal and that it will permit us to finish our harvest and shipping operations, which will be about three-fourths completed when national gasoline rationing goes into effect."

It is estimated that the big operators ship forty-four per cent of the country's Christmas trees, mostly Douglas fir, from the Pacific Northwest and western Canada. The remaining fifty-six per cent of the commercial cut, chiefly balsam fir and spruce, is in New England and eastern Canada, although the Lake States produce around 2,000,000 trees annually. Thus a brief survey of these tree producing regions, based on reports received by The American Forestry Association throughout October, may help somewhat to clarify the situation.

Reports from Montana, a large shipping state, are to the effect that "So far as we can tell, the Christmas tree industry in Montana and Idaho will proceed normally this fall. There will be difficulty in obtaining trucking facilities, of course, but much of the labor which normally goes into Christmas tree cutting is part-time labor of local farmers, and this source may not be seriously affected."

On the other hand, the situation in Oregon appears less hopeful. Observers there expressed the view that because of extreme labor shortage on the entire West Coast, "it would seem impossible for anyone to harvest Christmas trees profitably."

Swinging eastward, Maine expects at least a fifty per cent cut in the 1942 Christmas tree harvest of that state. One forestry specialist declared that Christmas tree dealers are pessimistic and a number have gone out of business.

From New Hampshire comes this report: "Few trees will be marketed this year. The men that we ordinarily used for the production of Christmas trees have either left the section entirely or are engaged in other types of woods work." The outlook for Vermont also indicates a reduction in the number of trees cut, due mainly to the scarcity of labor. Transportation difficulties, notably the custom of using trucks to haul trees to metropolitan areas, will likely curtail the 1942 harvest.

As a gauge to the situation in the Lake States, the Forest Service reports that with the exception of one national forest, where the cut will be normal, there will be approximately fifty per cent less trees harvested this year.

Thus with the size of the cut reduced from twenty-five to fifty per cent in the principal Christmas tree growing regions, many Americans may be forced to turn to local sources for their "Tree of Light."

But even the availability of home-grown trees in adequate quantities will depend upon the availability of local transportation.

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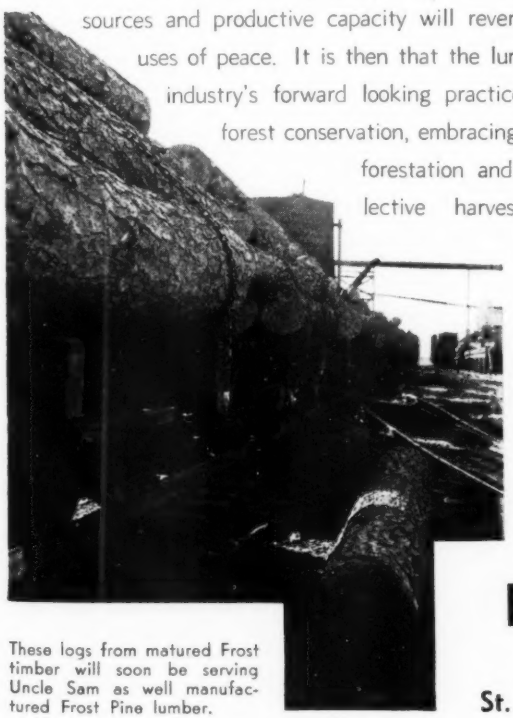
When that has been accomplished, our national resources and productive capacity will revert to uses of peace. It is then that the lumber industry's forward looking practice of forest conservation, embracing reforestation and selective harvesting,



These logs from matured Frost timber will soon be serving Uncle Sam as well manufactured Frost Pine lumber.

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Germany is reported to have devastated its famous perpetual forests to supply Hitler's devouring war machine. Not so America. Here the lumber industry is supplying Uncle Sam's military might from matured trees, at the same time safeguarding young trees for tomorrow. America's forests are enormous and will continue to be, because their owners are maintaining them by growing recurring timber crops . . . to be harvested as they mature, to be nurtured and protected for perpetual maturities. That is the lumber industry's reply to the enemy . . . that is how it keeps faith with the American people, now and for the future.

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1. **Protection of forests and related resources against the impending danger of forest fires.**
2. **Maintenance of a continuous production of wood and other forest products essential to the prosecution of the war.**
3. **Accelerated research in the use and production of cellulose, plywood, lumber and other forest products related to war needs.**
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SIECKE RETIRES AS STATE FORESTER OF TEXAS; SUCCEEDED BY W. E. WHITE

E. O. SIECKE, state forester of Texas for the past twenty-four years, announced his retirement early in October, bringing to a close a brilliant career in forestry that began thirty-seven years ago. Only one other state forester—Fred W. Besley, of Maryland, who retired on March 1 after thirty-six years of continuous service — has served longer than Mr. Siecke.

E. O. Siecke

Vice - director W. E. White, of the Texas Forest Service, will succeed Mr. Siecke as director. Formerly associated with the United States Forest Service, he has been connected with the Texas Forest Service since 1927, first as chief of the division of forest fire protection, and for the past two years as vice-director. He received his forestry training at Michigan Agricultural College and during World War I served overseas with the forestry regiment of the Tenth Army Engineers.

A native of Nebraska, Mr. Siecke began his forestry career in 1905, serving in Iowa, Washington and Oregon, before taking charge of state forestry work in Texas in 1918. So outstanding have been his accomplishments that the National Association of State Foresters elected him president in 1930, and in 1934 he was named a vice-president of The American Forestry Association. He was also appointed to membership on the Advisory Board of the Charles Lathrop Pack Forestry Foundation, and is a senior member of the Society of American Foresters. For the past eighteen years he has served as secretary of the Texas Forestry Association.

Under Mr. Siecke's leadership, the Texas Forest Service has come to be recognized as one of the outstanding organizations of its kind in the country. Created in 1926 as one of the four main divisions of the Texas A. & M. College, it has been moulded under Mr. Siecke's direction into a unified organization with divisions of work centering on fire protection, industrial forestry, state forests, farm forestry, research, tree planting and education. The personnel includes seventeen technical foresters and more than 200 other employees who are engaged mainly in protecting 9,000,000 acres of forest land in east Texas. From 1933 until 1941, Mr. Siecke also administered the work of the C.C.C. forestry camps in Texas.

In a letter to other state foresters, dated October 12, Mr. Siecke announced that he had planned to retire "when I reach the age of sixty-two or sixty-three." His decision to retire this fall, at the age of sixty, he said, "is due to the illness of Mrs. Siecke who has been directed to Omaha, Nebraska, for treatments which will last for some time."

Mr. Siecke will live at Wisner. "I have had agricultural interests near Wisner for a good many years and I may purchase additional farmland and occupy part of my time farming," he wrote.

"All of us, in developing state forestry work, have had to swim against the current. I had seven years of this strenuous exercise in Oregon and practically twenty-five years in Texas. After having worked with the federal government and three different states during the past thirty-eight years, I want to see how it feels to be independent during my last years. Of course, it is an emotional tug on my heartstrings to leave the Texas forestry work after all these years. Texas and the splendid Texas people have been mighty fine and have rewarded me beyond what I deserve."

W. E. White

LITHGOW OSBORNE RESIGNS IN NEW YORK

Lithgow Osborne has resigned as State Conservation Commissioner of New York—according to an announcement made by Governor Lehman on November 7—to take up war work with the Office of Strategic Services. Acting Commissioner John T. Gibbs was named head of the department to serve until expiration of Governor Lehman's term, December 31.

Graves Heads War Committee on Forestry

TO PROMOTE research and other activities in the forestry field which will further the prosecution of the war and will help meet post-war problems, the National Research Council has announced the organization of a War Committee on Forestry representing jointly both the Council and the Society of American Foresters. The Committee is one of a series of war committees embracing various fields of biology which the Council is organizing.

Henry S. Graves, former dean of the Yale School of Forestry, has been selected as chairman of the Council's Committee on Forestry. Other members of the Committee are Henry E. Clepper, Secretary of the Society of American Foresters; Inman F. Eldredge of the Southern Forest Experiment Station of the U. S. Forest Service; George A. Garratt of the Yale School of Forestry; Thornton T. Munger of the Pacific Northwest Forest Experiment Station, and Henry Schmitz, dean of the forestry department, University of Minnesota, and president of the Society of American Foresters.

The Committee, it is stated, will not serve as a research agency but will be cooperative in character with the major purpose of aiding existing agencies and institutions in dealing with war problems in the forest field.

"The Committee will direct its first efforts," Colonel Graves states, "to aid of projects that are vital in prosecution of the war. It will interest itself in significant problems in any or all fields of forestry, scientific, technological, industrial, economic, and social. It will also include in its studies those problems of forestry which the country must be prepared to meet after the war. In many cases the investigations needed in the war effort will provide information of importance in post-war reconstruction. As an independent group the Committee is in a strategic position to give added emphasis to the need for specified research projects and to support requests for funds to carry on the work."

Among the Committee's contemplated activities are surveys of basic forest problems and of current and potential research work, studies of personnel problems in forest research and of wood as an essential raw material, furtherance of research in wood utilization, educational war training needs especially for those required by the armed forces in dealing with wood and its uses, forest protection and a series of post-war adjustment problems which may face the nation upon conclusion of the world conflict.

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First, because in addition to normal forest fire hazards, sabotage by our enemies through widespread setting of forest fires, by aerial bombing and ground incendiarism should be greatly guarded against.

Second, many sections of the country are not now adequately prepared against such a contingency and the danger is particularly acute.

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WATTS NAMED ASSISTANT TO WICKARD

SECRETARY of Agriculture Wickard on November 5 announced the appointment of Lyle F. Watts, regional forester from Portland, Oregon, as an assistant to him with a special assignment to coordinate farm labor activities of the Department. Mr. Watts is taking over his new duties immediately.

Mr. Watts, who has been in the U. S. Forest Service since 1913, has had wide experience in employing, organizing, and handling both skilled and unskilled workmen, in dealing with livestock men, farmers, construction crews, and the public in general. In his work with the Forest Service he has gained an intimate knowledge of labor conditions in the lumber industry of the nation. He was associated for six years with the late F. A. Silcox, who was chief of the Forest Service from 1933 to 1939 and who was widely known for his work in the field of labor.

Mr. Watts, who was born in Cerro Gordo County, Iowa, in 1890, is a graduate of Iowa State College. From 1918 to 1928 he served as supervisor in national forests in Idaho and in forest management work in the Intermountain area. In 1928 he organized the School of Forestry at Utah Agricultural College. He re-entered the Forest Service the following year, and served successively at Ogden, Utah, and Missoula, Montana. In 1936 he became regional forester for the North Central Region, embracing national forests in Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, North Dakota, Ohio, and Wisconsin. In 1939 he became regional forester of the Northern Pacific Region with headquarters at Portland, Oregon, and has held that post up to the present.

A. F. A. OFFICERS FOR 1943 NOMINATED

THE Committee on Elections of The American Forestry Association, chosen to nominate a slate of officers for the Association for 1943, has brought in the following report and their names will appear on the election ballot to be mailed to all members in December.

For *President*, W. S. Rosecrans, of California; for *Treasurer*, George O. Vass, Vice President of the Riggs National Bank, Washington, D. C.

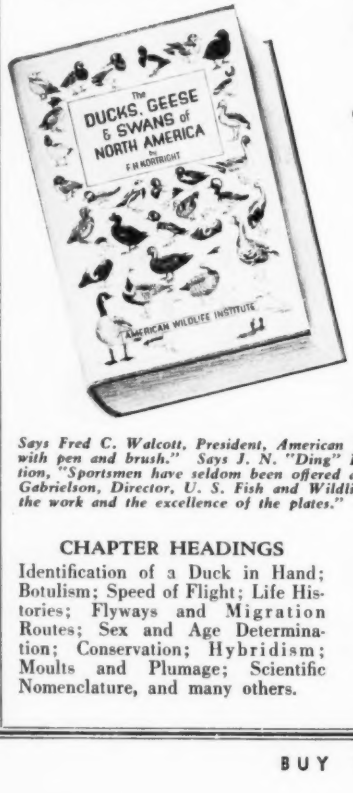
Directors for five-year terms: Bryce Browning, Secretary-Treasurer, Muskingum Watershed Conservancy District, New Philadelphia, Ohio; Samuel T. Dana, Dean, School of Forestry and Conservation, University of Michigan, Ann Arbor, Michigan, and William P. Wharton, President, National Parks Association, Groton, Massachusetts.

Director for two-year term: Randolph G. Pack, President, Charles Lathrop Pack Forestry Foundation, New York City.

Director for one-year term: Harper Sibley, Banker and Agriculturalist, Sibleyville Farms, Rochester, N. Y.; Colin G. Spencer, President, North Carolina Forestry Association, Carthage, North Carolina (by membership nomination.)

For the twenty-one Vice Presidents: Alexander P. Anderson, plant physiologist, chemist and inventor, Redwing, Minnesota; George Alexander Ball, Ball Brothers Foundation, conservationist and philanthropist, Muncie, Indiana; Morris B. Belknap, educator, farmer, Louisville, Kentucky; Thornhill Broome, Izaak Walton League of America, Chicago, Illinois; W. H. Cowles, journalist, owner and publisher, *The Spokesman Review*, Spokane, Washington; Aubrey Drury, Save-the-Redwoods League, San Francisco, California; Thomas M. Edison, engineer and industrialist, West Orange, N. J.; Mrs. T. M. Francis, Chairman of Conservation, General Federation of Women's Clubs, Birmingham, Alabama; Mrs. Luis J. Francke, chairman, Conservation Committee, The Garden Club of America, Glen Head, Long Island, N. Y.; Quintin T. Hardtner, Urania Lumber Company, pioneer in southern forestry, Urania, Louisi-

ATTENTION ! ! SPORTSMEN AND NATURALISTS



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CHAPTER HEADINGS

Identification of a Duck in Hand; Botulism; Speed of Flight; Life Histories; Flyways and Migration Routes; Sex and Age Determination; Conservation; Hybridism; Moults and Plumage; Scientific Nomenclature, and many others.

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ana; Edmund Hayes, chairman, "Keep Oregon Green" Association, Portland, Oregon; Augustus S. Houghton, New York State Reforestation Commission, New York City; D. S. Jeffers, Dean of Forestry, University of Idaho, Moscow, Idaho; Mrs. William L. Mellon, Pittsburgh, Pennsylvania; Elis Olson, President, The Chesapeake Corporation, Westpoint, Virginia; H. M. Seaman, Chairman, Conservation Committee, Southern Pine Association, Houston, Texas; Henry D. Sharpe, manufacturer, Providence, Rhode Island; Miss Olive Simes, Boston, Massachusetts; Henry L. Stoddard, author and wildlife expert, Tallahassee, Florida; Gordon Strong, landowner and planner, Stronghold, Maryland; Mrs. Henry Alvah Strong, founder, Hattie M. Strong Foundation, Washington, D. C.

Members of the Committee on Elections for 1943, selected from the membership of The American Forestry Association, were: J. P. Kinney, Chairman; L. N. Ericksen and W. L. Gooch.

The By-Laws of the Association provide that members may make nominations for officers direct, provided such nominations are signed by not less than twenty-five members. The Committee received one such nomination from the membership—that of Colin Spencer, who was nominated to fill the unexpired term of the late Col. Joseph Hyde Pratt. Otherwise, the list above—proposed by the Committee—will be the only names to appear on the ballot, to be mailed next month to all members of the Association.

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SILCOX-STUART MEMORIAL GIVEN TO YALE

A TABLET in memory of Ferdinand A. Silcox and Robert Y. Stuart, former chief foresters of the United States, was dedicated on November 21 at the Yale Forest School. Both Mr. Silcox, who died in 1939, and Mr. Stuart, whose death occurred in 1933, were graduates of Yale.

The tablet, presented by the living alumni of the former Robin Hood Society of the Yale Forest School, is of heavy white oak, with hand-carved letters, as follows:

IN MEMORIAM

Ferdinand A. Silcox, Class of 1905
Chief Forester of the United States
1933-1939

Robert Y. Stuart, Class of 1906
Chief Forester of the United States
1928-1933

This Tablet Placed Here by Members
of the Former Robin Hood Society of
the Yale School of Forestry — 1942

An exact replica in shape of the badge of the former Robin Hood Society—straight top and sides coming to a point at the bottom—the tablet is eighteen by twenty-six inches. It was hung in the main hallway of the School.

The Robin Hood Society for foresters was founded at Yale in 1905 and existed until 1911 when it voluntarily disbanded, donating its funds to Yale to be used toward the purchase of land for a school forest. It was probably the first secret society to be founded in any American forestry school. Of its total membership of ninety-eight, eighty-five are still living in various sections of the United States, Canada and Cuba. Its alumni have held and are holding high and responsible forestry positions in the federal and state governments, as professors and deans of forestry schools, and with private lumber companies. The tablet was presented in honor of two of its most distinguished fellow foresters.

The committee handling the dedication of the tablet included Major John D. Guthrie of Washington, D. C., class of 1906, chairman, who presented the tablet and made the dedicatory address; John M. Nelson, Jr., of Baltimore, Maryland, class of 1905; Ovid Butler of Washington, D. C., class of 1907; and Julian E. Rothery of Washington, D. C., class of 1908.

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THE DUCKS, GEESE AND SWANS OF NORTH AMERICA, by F. H. Kortright. Illustrated by T. M. Shortt. The American Wildlife Institute, Washington, D. C. Price: Cloth-bound, $4.50 ($5.00 in Canada); Morocco-bound, autographed and numbered, $10.00.

There are a multitude of natural phenomena the descriptions of which will never be captured by words. The grandeur of a mountain range, the splendor of a tropical sunset, the iridescence of a rainbow, all these and many more have evaded the printed and spoken word for centuries. In this category falls the delicate pigmentation and intricate plumage pattern of the multitude of migratory waterfowl that twice each year span the continent to seek a more equable climate. Though these gaudy colors have succeeded in evading print, their delicate beauty appears in the 36 full-color plates that illustrate *The Ducks, Geese and Swans of North America.*

This is a book for which the waterfowler has long waited. It is also the book for the scientist, naturalist and bird-lover in that it describes with scientific accuracy every species of duck, goose and swan inhabiting the waters of this continent. The delightful style of the author is augmented by the masterful drawings.

To make the book the most complete in its class, Dr. Ira N. Gabrielson, Director of the U. S. Fish and Wildlife Service, has written a chapter on Conservation, and Frederick C. Lincoln, noted ornithologist, two chapters on Migration, Flyways and Banding. More than 200 original line drawings, a hundred maps and 36 full-page color plates make this book one of the outstanding book-making achievements of the year—an ideal Christmas gift.

PECOS BILL AND LIGHTNING, by Leigh Peck. Houghton Mifflin Co., Boston, Mass. 67 pages. Illustrated. Price, $1.75.

A gay account of the life and activities of "Pecos Bill"—the legendary hero of the cattle range. Son of a brave woman, this fearless cowboy of the Southwest, it will be remembered, was so good he could ride the lightning, and so tough that cyclones ducked when he appeared. Designed to delight for an hour, this book is further enlivened by humorous drawings, done in color.

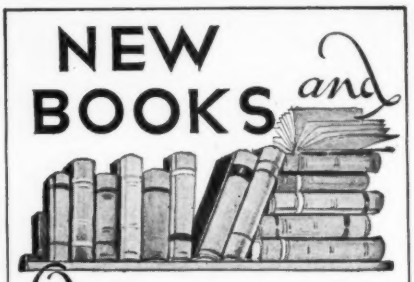
THE HARVARD FOREST MODELS, by the President and Fellows of Harvard College. The Cornwall Press, Inc., Cornwall, N. Y. Fisher Museum, Harvard Forest, Petersham, Massachusetts. 48 pages. Illustrated. Price fifty cents. (Paper, twenty-five cents.)

The construction of these very interesting exhibits was begun in 1931 and not completed until 1941. They portray the history of the central New England forests, beginning with the first white settlement in Petersham; then the silvicultural practices developed at Harvard Forest and last, modern forestry functioning in allied fields. These include wildlife management, control of soil erosion and forest fire. And there is a large, central model which reproduces a section of a beautiful old-growth stand.

THIS GREEN WORLD, by Rutherford Platt. Dodd, Mead & Company, New York. 222 pages. Illustrated. Price, $3.75.

This Green World is a drama of Nature's kingdom, and the actors are the trees and flowers, moving in their manifold and exact parts against the exquisite backdrop of Nature's ever-changing scene.

The author says, "the landscape is a vast system constantly in action," and proceeds—in this remarkable book—to clarify and prove his assertion. Not by the presentation of heavy, scientific facts but by an array of thrilling information—none the less accurate because it is thrilling and unusual—information to amaze and intrigue, and lure the reader on, chapter by chapter, unveiling beautifully such natural mysteries as the building of a tree by dividing cells; how trees move with eccentric loops; the power of trees to lift tons of water; the origin of bark patterns; how color and light from the sun materialize on earth in trees and flowers; how plants twist and turn; how buds open and the secrets of leaf mosaics—to mention just a few of the fascinating angles covered. This unusual book is illustrated by the author, who is a gifted photographer as well as naturalist. There are one hundred and thirty-five photographs in all, twenty-seven of which are in full color. *This Green World* appears at a most opportune moment—just in time for the Christmas trade, for it would make the perfect Christmas gift.



OTHER PUBLICATIONS

A list of Selected Books on Forestry and related fields of Conservation is available to members of The American Forestry Association on request.

The publications listed below must be ordered direct from the addresses as given and not through the Association.

New Forest Frontiers. Forest Service, U. S. Dept. of Agr., Miscel. Pub. No. 414. Supt. of Docs., Wash., D. C. Price, 30 cents.

What You Ought to Know About du Pont Nylon Leader Material. Published by the Plastics Department, E. I. du Pont de Nemours & Co., Arlington, N. J.

Work of the Soil Conservation Service, U. S. Dept. Agr. Supt. of Docs., Wash., D. C. Price, 5 cents.

Wisconsin Wildlife Chronology, by Aldo Leopold, Univ. of Wis. Conservation Dept., Madison, Wisconsin. Price, 5 cents.

Virginia Wildlife—Spring-Summer, 1942. Virginia Commission of Game and Inland Fisheries, Travelers Building, Richmond, Va. Price 10 cents.

Wildlife Management As A Part of Soil Conservation, by Edward H. Graham. Soil Cons. Serv., U. S. Dept. Agr., Wash., D. C.

Douglas Fir Lumber Industry (Supplement to the Interdepartmental Report), prepared for a Commission Appointed by the National Defense Mediation Board, Wash., D. C.

Forest Resources of Logan County, Ohio, by James J. Cann. Report No. 17, Ohio Agricultural Experiment Station, Wooster, Ohio.

Report of the Forest Branch, Department of Lands, Province of British Columbia, 1941. The Minister of Lands, Victoria, B. C., Canada.

Facing the Forest Future, by Dr. Wilson Compton. School of Forestry Lectures No. 5. Duke University, Durham, N. C.

Machining and Related Characteristics of Southern Hardwoods, by E. M. Davis. Tech. Bull. No. 824, U. S. Dept. Agr. Supt. of Docs., Wash., D. C. Price 15 cents.

History, Policy and Program of the Huntington Wildlife Forest Station, by R. T. King, W. A. Dence and W. L. Webb. Roosevelt Wildlife Bulletin. Roosevelt Wildlife Forest Expt. Sta., N. Y. State Coll. of For., Syracuse, N. Y.

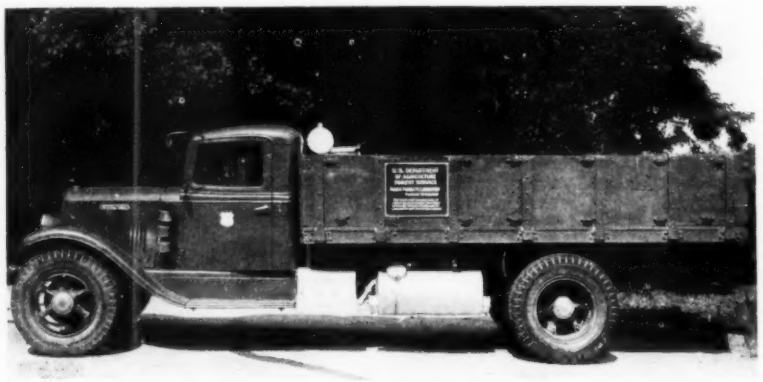
The Education of Free Men in American Democracy, by the Educational Policies Commission. National Education Association of the U. S., 1201 16th Street, N. W., Wash., D. C. Price 50c (discounts on quantity orders).

Compiling a New Nursery List, by L. C. Chadwick, and

Selection of Broad-leaved Evergreens, by L. C. Chadwick. The American Nurseryman, 508 South Dearborn Street, Chicago, Ill. Price 40 cents each.

Wood Propelled Automobile Attracts Wide Interest

THE test trials of a wood propelled automobile by the Forest Products Laboratory of Madison, Wisconsin, as briefly reported in the last issue of AMERICAN FORESTS, have attracted such wide interest that further details have been obtained from Carlile P. Winslow, Director of the Laboratory, and are given here, including a photograph of the demonstration truck as equipped by the Laboratory. Although the war has forced some of the European countries, notably Germany, France, Norway and Sweden, to extensive development and use of the wood-gas automobile or "gasogene" as it is commonly called, the Laboratory's test car is thought to be the first instance in which wood-gas has been adapted to an American automobile.



Wood-gas runs this American automobile—a demonstration truck equipped by the Forest Products Laboratory

Commenting on the Laboratory's work in this field, Director Winslow states:

"The Laboratory's apparatus to fuel American trucks, automobiles, and tractors with wood charcoal was built according to the designs of the M & R Products Company which had had experience with gasogenes in France prior to the war. The company, in addition to cooperating with the Laboratory by making designs available for test purposes, has provided a gasogene unit for an Army truck for demonstration to officials of the Chinese embassy and lend-lease agencies in Washington, D. C.

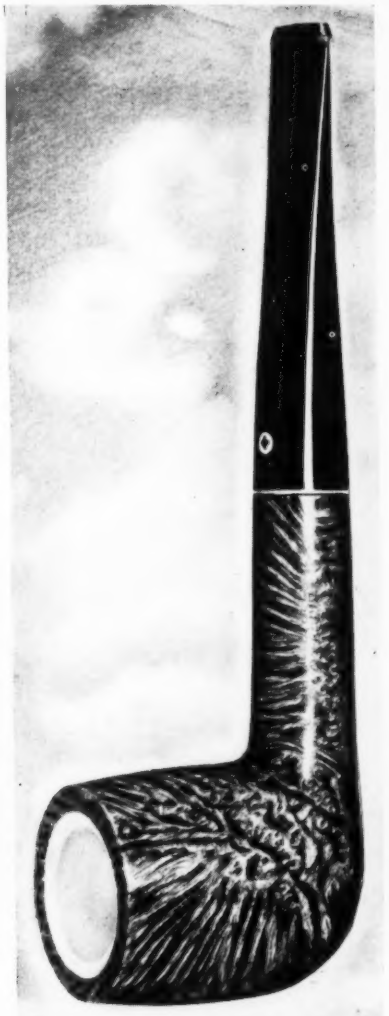
"The development was undertaken by the Laboratory to provide 'insurance' against a possible sudden need for such equipment in the conduct of the war either here or in others of the United Nations. The device is in common use in certain European and other foreign countries, where it is generally called a 'gasogene.'

"Cheap, abundant gasoline supplies have hitherto made operation of gasogene uneconomical in this country; hence, there is little knowledge of their construction and operation available here. The unit which the Laboratory has tested could be put into production in the United States with a minimum of delay, now that a working model is available, but the individual's interest in the matter must for the most part be held in abeyance because there is no chance for civilian application during the war because of lack of necessary metals for its construction. Neither the designs nor other data concerning the M & R gasogene are available for distribution from the Laboratory.

"The war emergency prompted the Laboratory to look more closely into the possibilities of gasogenes, which had been studied earlier in a preliminary way. There are many special uses directly connected with the war effort, in areas remote from gasoline sources, to which they can conceivably be adapted.

"Moreover, our Allies in this war, especially countries such as China which lack gasoline, have a definite use for gasogenes to power trucks hauling war supplies over long, difficult overland routes. It is reported that, in China, three trucks are sometimes used to transport gasoline for the fourth. Chinese supply agencies have expressed keen interest in production of gasogenes in quantity for their army supply trucks. Charcoal is widely burned there for heat, hence would be easily obtained for motor fuel.

"The gasogene, according to R. H. P. Miller, in charge of the testing of the M & R unit, is a fairly simple apparatus. It consists of a generator in which charcoal is burned; the gases thus produced are piped through coils which cool them and filter out dirt and gummy residues, and thence into the cylinders, where they are exploded just as are gasoline vapors. Although these gases have lower b.t.u. value and hence generate less power than gasoline, a supercharger is attached to the type tested by the Laboratory to step



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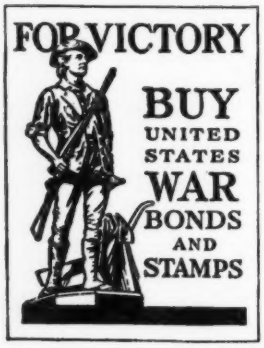

up power output.

"The Laboratory unit was built from designs developed by an American engineer with wide experience in gasogene construction in Europe. The engineer, George Wolfe, left France in June 1940, as German armies over-ran the nation. He joined the Laboratory staff last winter to direct construction of the gasogene.

"A standard truck was equipped with the gasogene and given rigorous performance tests on roads in the vicinity of Madison. The truck, when loaded to its normal carrying capacity, attained fairly normal operating speeds up to forty miles an hour. On hills the gasogene-fueled truck requires one gear shift below that required with gasoline.

"The unit weighs about 400 pounds. Only the generator, which has a capacity of about 150 pounds of charcoal, takes up any loading space on the truck, the filtering coils and other parts being attached to the chassis beneath the truck body. Consumption is about 1½ pounds of charcoal per mile. One filling will carry a 1½-ton truck about 100 miles."

TILGHMAN NURSERY DEDICATED

THE state forest nursery at Sumter, South Carolina, was dedicated on October 28 to the memory of Horace L. Tilghman, who for a decade prior to his death in 1937 served as chairman of the South Carolina State Commission of Forestry. The nursery, established in 1938, with a capacity of 20,000,000 tree seedlings a year, is one of the outstanding tree nurseries in the South.

One of the state's leading lumbermen, Mr. Tilghman devoted much of his energy and time to conservation. He was active in the organization of the Southern Forestry Congress, serving as its president. He also took a leading part in the creation of the Conservation Society of South Carolina, which later developed into the South Carolina Forestry Association. It was largely through the work of this Association, under his leadership, that the South Carolina State Commission of Forestry was created in 1927.

THE WAR ON THE WOLF

(*Continued from page* 555)

guns, traps, poison, bounties, and enclosures — were employed as defense against wolf depredations. This vengeance on the wolf was due in the main to a psychological twist so noticeable among many of the western cattlemen. Disease could decimate his flocks and herds, or drought or severe winters could result in starvation or extreme loss by death, but none of these factors aroused his resentment and determination to kill as did the raiding of livestock corrals by wolves or kills made on the open range. And perhaps there was justification, for these losses by the cattlemen were among the most severe with which the open range industry had to contend during its development. The wolf, of course, seeking a substitute for its buffalo diet, quite naturally turned to beef cattle, bringing all of its killing traits into play.

In the heat of battle, the use of strychnine for wolf control became a major scheme of defense. A sort of range law was adopted whereby no ranch man would knowingly pass up a dead carcass without first inserting a goodly dose of strychnine, in hopes of eventually killing a wolf or two. The hazard of such a plan to other forms of wildlife was not apparent to the stock interests at the time. The predominating thought was to get the wolf at any and all means possible. Coincidental with this was the development of many wolf coursing dogs. Theodore Roosevelt wrote of these greyhounds and deerhounds, "One of the most famous packs in the West was that of the Sun River Hound Club of Montana, started by the stockmen of Sun River to get rid of the curse of wolves which infested the neighborhood and worked very serious damage to the herds and flocks."

With many of the cattle interests, particularly toward the close of the nineteenth century and the early 1900's, lack of profits in keeping with the investments made, seems to have given greater impetus to wolf control. Stock associations, state and county wolf bounties began to

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appear. Also some counties offered strychnine free to all who would use it. As a consequence, many, including a great number of cowboys, entered into the scheme of poisoning wolves.

Losses to the sheep industry from wolves were in many cases just as severe as in the cattle industry. In the former, however, coyotes supplemented the depredations by wolves. Dr. T. S. Palmer estimates that in 1892, in New Mexico, where sheep were valued at $4,556,000, such losses varied from three to seven per cent; in Nebraska the value of sheep was about $2,000,000, while the losses amounted to five per cent; and sheep owners in central Texas suffered losses to the extent of from ten to twenty-five per cent.

One of the foremost among those versed in the livestock problem at the time was the late Senator Thomas B. Kendrick of Wyoming. Commenting on the wolf menace, he said, "Between the time of the breeding season of one year and the spring roundups of the next season, even with a mild winter, and where there were infinitesimal losses from other sources, the grey wolf destroyed sometimes as high as fifty per cent of the calf crops within those months.

"I have never yet been quite able to estimate the number of cattle that a grey wolf will destroy within the period of a year's time. Neither have I ever been able to estimate the price that a ranchman could afford to pay for the destruction of a grey wolf.

"Recently I have received quite a few letters from university people insisting, as I recall, on moderate action in connection with the extermination of predatory animals, but I am unable to conceive of anyone making that plea who had a personal acquaintance with either the terrific disaster wrought upon herds and flocks by wolves and coyotes or with the method employed by these animals in connection with the destruction of their prey. It is the most barbarous thing imaginable. No doubt, the motives of these people are the best, but I believe they are uninformed of the extent of the depredations.

"Nothing in my opinion has ever been imposed—I mean no injurious influences —upon the stockmen of the West that is equal to the destruction of the grey wolf and the coyote."

The clash that was increasing in volume during the late 90's and early 1900's between livestock interests and the predator problem brought demands to the Biological Survey (now Fish and Wildlife Service) for investigations that would ultimately bring some system of definite predator control into being. Practically all of the western states and many of the counties by this time had tried bounties—some with disastrous financial results—and it was felt that this plan was far from adequate.

Field naturalists of the Survey made investigations of the problem in connection with both the livestock and wild game angle of predator depredations, particularly with regard to the wolf. These investigations led to a number of published reports by the Department of Agriculture, one of which, "Key to Animals on Which Wolf and Coyote Bounties are Often Paid," issued in 1909, was later used to aid the states in reducing some of the fraud apparent in bounties, where all sorts of scalps from other than wolves and coyotes were being submitted for payment. At this time the Biological Survey also found losses from wolves and other predators could be prevented only by intelligent and concerted action throughout the predator-infested livestock country. It was revealed that in early spring the breeding dens of wolves could be located and the young destroyed at small expense. The application of this discovery in connection with scent baits for trapping adult wolves on the livestock ranges and other information obtained in previous field work, resulted in an immediate saving of stock valued at $1,000,000.

Further impetus was given wolf control when fees were collected by the government for the privilege of grazing stock on western national forests. The stock interests felt and so forcibly expressed the sentiment that it was unfair to collect a grazing fee when a forest area was heav-

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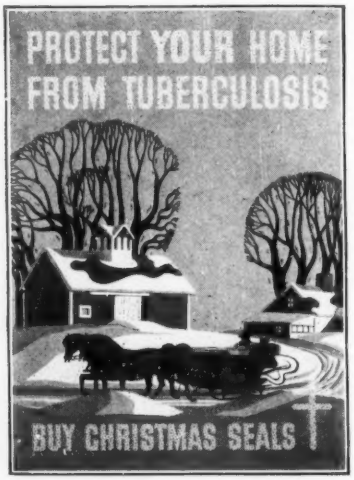

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THE AMERICAN FORESTRY ASSOCIATION

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ily infested with wolves and other predators, that the Forest Service ordered its field officers, particularly the forest rangers, to carry on wolf trapping operations. These measures afforded some means of relief but there still remained large areas of public domain upon which no wolf control was attempted or if so, only in a haphazard manner. Consequently, on many national forests the effective wolf control that was done by the rangers afforded only temporary relief, due to wolf reinfestation from the surrounding lands.

Between 1907 and 1914, state and county bounties were continued, privately employed trappers took to the field, using every known method, including much poison, and finally national recognition of the predator problem was achieved. This recognition, and the fact that the federal government had a large interest in the problem, caused Congress to lend an ear to the financial pleadings of western stockmen.

Consequently, on July 1, 1915, the first appropriation specifically providing federal funds to assist in organizing predator control was made. This appropriation of $125,000 also provided for correlation of agencies at work on the problem.

Throughout the intervening years, many of the states have repealed their bounty laws, so by 1938 few remained upon the statute books. In lieu of these, the states have made modest appropriations through legislation directing cooperation with the federal government. These cooperative measures have been further supplemented by direct assessments of livestock associations and contributions from private stockmen and farmers, either in the way of cash or donated labor and material. The promiscuous and oft-times ill use of poison by the stock interests in predator control has practically become a thing of the past, due mainly to the hazards that were involved in its earlier unwise and unscientific application. Improvement in trapping technique has brought many worth-while humane devices for capture—a direct aid to conservation.

The wolf has been definitely brought under control, and exists today in North America as a very minor problem affecting man's interests, with the possible exception, at times, of portions of Texas, Arizona, New Mexico, Oklahoma, Missouri, Louisiana, Alaska, and the Canadian North. Where not in conflict with human interests, wolves may well be left alone. They form one of the most interesting groups of all mammals, and should be permitted to have a place in North American fauna.

Fortunately, wolves still exist in many areas where there is no conflict with human interests. Such areas, it is believed, will perpetuate the existence of these interesting mammals, unless they are crowded out by further development. This will not be for a long time to come, if ever.

An Opportunity to Pay Tribute to Fire Heroes

The American Forest Fire Medal Board recognizes outstanding cases of personal heroism in fire fighting by awarding the Forest Fire Medal. The Board consists of a representative of The American Forestry Association, Society of American Foresters, Charles Lathrop Pack Forestry Foundation, Association of State Foresters, and the National Lumber Manufacturers' Association.

In order to establish this Award on a permanent basis, a fund or foundation of not less than $3,000 is necessary. Cash balance on hand totals $2,541.17. Your assistance in completing this fund is hereby solicited. It is believed that foresters, forestry, park, and all forest protection associations, as well as other conservation groups, will welcome the opportunity to contribute. Contributions should be sent to:

THE AMERICAN FORESTRY ASSOCIATION

919 SEVENTEENTH STREET, N. W.
WASHINGTON, D. C.

COMMON CLAY AGAIN

(*Continued from page* 560)

Now, stirred up again by constant pounding of my boots against the hard earth, it is coming back.

A human body never lives until it has tasted the physical hardships out in the wilderness. Man never knows life until he has been hungry and cold, or exhausted almost beyond human endurance. Only those eyes which have seen a weary trail wind into the shadows, which have seen death almost at the finger tips, which have seen the everlasting struggle that all God's lesser creatures must make to survive, can understand the real values of the wilderness. Dying autumn leaves set the world ablaze with color. Wispy clouds across the moon help to enchant the night. A humming bird risks her fragile body to drive a marauding jay away from her nest of lichens and silk. A spider traps the lovely moth; not because he is ferocious, but because he is hungry. Those are the simple, the elemental things of life. I can't find them in an automobile, or with my feet on a desk top. But I am seeing them with new eyes, out in the earth, where I am learning to walk all over again.

Today, we are fighting here and on many fronts of the world to retain our American way of life. But I hope with all my heart that out of this new chrysalis of freedom, shall come a *new* American way of life, where we may continue to employ the advantages which science has given to us, but where we can still retain enough of the basic, fundamental simplicities to make us a part of the common clay, even though we reach up and touch hands with God.

MAHOGANY GOLD

(*Continued from page* 542)

were dotted with small palisaded camps of English mahogany cutters. Becoming aroused the Spanish systematically began attacking them, killing or driving them from the coast. But by a treaty signed by the two countries in 1786, the century-old struggle was ended, Spain allowing England cutting rights at Belize, now British Honduras.

The exploitation and control of Honduran mahogany, so long held by the English, is due in large part to the friendly relations the English first established with the Miskito Indians. They are the only loggers on the coast. No northern woodsman could long stand the climate, the country, the pestiferous insects and unspeakable food, nor the conditions under which the wood is cut and logged to the streams and floated to the sea.

This curious Indian hybrid, the very basis of the mahogany industry, is a mixture of indigenous American Indian and African slave. In 1640 an African slaveship, bound for Brazil, was wrested by the slaves from the Portuguese and carried by the currents, and later wrecked on the shoals of the Mosquito shore. The Africans, tall, slender, kinky-haired folk, chosen for slaves because they were the finest specimens, were seized by the Sumu Indians who lived on the Coast. In a generation, the African intermarried with the Sumu and produced a distinct hybrid; adopted the language of the Sumu, gave it a curious variation, and became quickly acclimated to his new home.

The buccaneers, foes of the Spanish, landed on the coast and for no other reason than that they were the enemies of the Spanish were assisted by the Miskito people in their expeditions against the Spanish colonists. The association between the two peoples grew; the buccaneers gave them guns and cloth and the Miskito in turn cut their lumber and hunted for the pirates. Trained to use metal axes, the Miskito became exceedingly adept at the logging. Expert canoemen, they knew the native regions, and were able to navigate the great lagoons, and push their canoes up the narrow, winding rivers to the interior.

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THE
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The Miskito Indians are lords of the mahogany. They need no union; tribal solidarity holds them together. I was told of a strike that stopped work on Mr. Bunnell's logging operations because an inferior baking powder had been used in their bread, although in their own huts they are content with banana and Yucca day after day.

I fully realized their place in the mahogany industry when I followed behind a log drive down the narrow, swift-flowing Warunta River that empties into the lagoons on the Caribbean. A log jam had occurred and stopped the whole movement of logs. The Indians promptly slipped over the sides of the dug-outs, swam through the churning waters, where they might have been brained by floating timbers, and by main strength under water and above, pried loose the logs, released the jam and sent the mahogany on its way in the long journey from the jungle bush to our drawing-rooms.

Trees Against the Wind

(*Continued from page* 562)

shores, wet spots, and more mature pine stands. Evergreen huckleberry, kinnikinnick, coast willow, Oregon crabapple and nutka rosa have been used in such places and create a more favorable wildlife habitat. Their use is limited by the scarcity of favorable sites.

The magnitude of this forestation project can be realized by noting that approximately 2,000,000 plants have been placed on approximately 600 acres, and that considerably more than 1,000,000 shrubs and trees still can be planted. The completion of the project depends upon general conditions in the post-war period, but maintenance of the work already done is assured by the recent formation of a soil conservation district. Through this, landowners will put into effect restricted land uses commensurate with the "danger" or land-use capability ratings of each acre of Clatsop Plains.

National defense along the strategic Pacific Coast already is benefiting considerably through the presence of this vegetation, which permits better location and protection of defense structures. The former sand barrens would have been an almost impossible military development site.

Today the Clatsop Plains are well on the way toward being stabilized, and the future security of landowners and recreationists has been assured by the successful and cooperative use of grasses, shrubs and trees, proving once again that vegetation can restore physical properties to soil and land and economic values to dependent communities. Man once again has learned the healing nature of plants, which have the power to repair the scars of injured earth.

WHO'S WHO
Among the Authors in This Issue

Capt. James L. Dyson

JAMES L. DYSON (*Skis Go South*), of Georgia, received his Ph.D. degree from Cornell, and has since taught at Colgate University, spending his summer vacations working in Glacier National Park, studying and reporting on glaciers. In June, 1941, he entered the Army as instructor in map reading and aerial photography. Captain Dyson recently left on a special assignment in overseas duty.

VICTOR W. VON HAGEN (*Mahogany Gold*), explorer and author and authority on Latin America, was born in Saint Louis but educated abroad. He is now busy on a great work—"The Aztec and Maya Papermakers" and finishing up a book on South American explorers before going into the army.

ELEANOR BRADFORD CHURCH (*Trees—Ex Libris*) is a librarian by profession, attached to the New York Public Library. Bookplates have been her hobby for years, and she is a well-known collector of these interesting items.

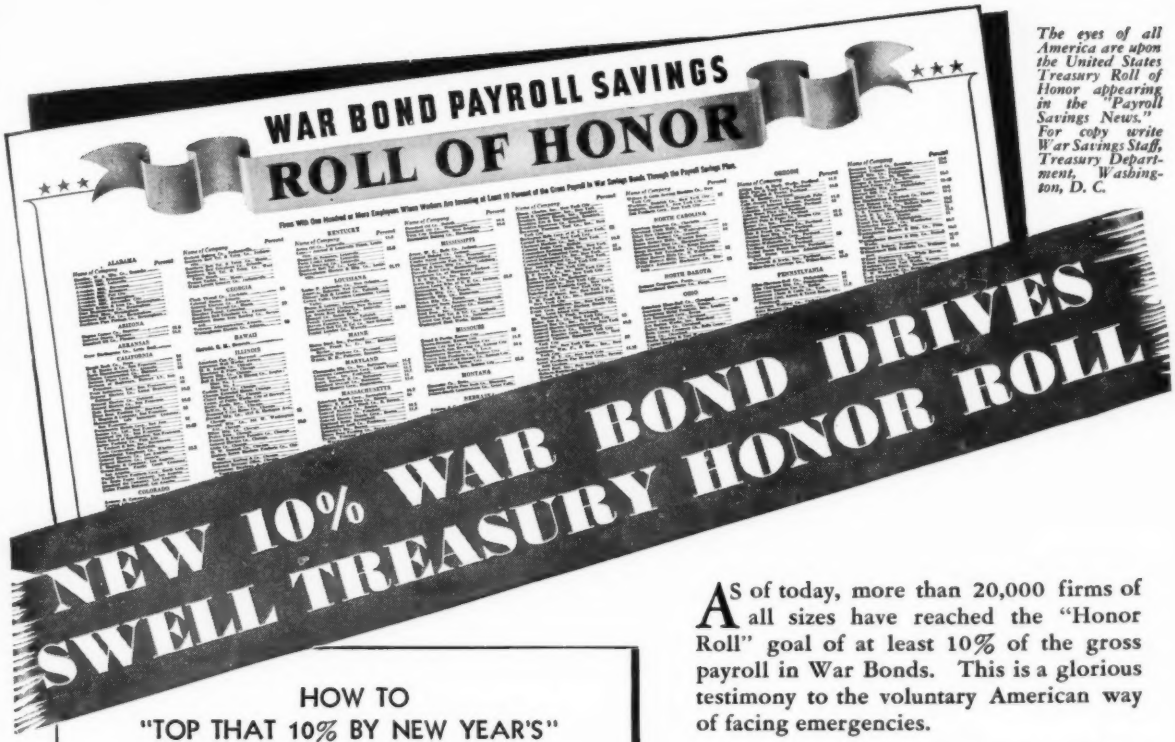
STANLEY P. YOUNG (*The War on the Wolf*), wildlife expert, presents Part Two, and the conclusion, of his account of the long fight on this predator of the plains, and how final control and extermination of the wolf were brought about.

WYMAN SMITH (*Discovered—An Everbearing Holly*) has been a free-lance feature and fiction writer. Formerly with the Soil Conservation Service, during the past six years he has at various times been in charge of press and radio information for the United States Forest Service.

CHARLES ELLIOTT (*Common Clay Again*), forester and writer of Georgia, well known to the readers of this magazine, muses here in characteristic style on the simple joys of walking—rediscovered through war's necessity, the abandonment of cars and coming down to earth once again.

RUTH MILLARD (*Wooden Toys*) of New York, a Vassar graduate, was for five years a reporter on the New York *World.* She is now doing public relations work, and writing for national magazines and radio. A special interest in the play interests of children, stimulated by her own two active youngsters, has resulted in her knowledge of the toy industry—about which she writes.

THE COVER—Christmas in the California Hills. Photograph by Josef Muensh.



The eyes of all America are upon the United States Treasury Roll of Honor appearing in the "Payroll Savings News." For copy write War Savings Staff, Treasury Department, Washington, D. C.

HOW TO "TOP THAT 10% BY NEW YEAR'S"

Out of the 13 labor-management conferences sponsored by the National Committee for Payroll Savings and conducted by the Treasury Department throughout the Nation has come this formula for reaching the 10% of gross payroll War Bond objective:

1. ***Decide to get 10%.***
   It has been the Treasury experience wherever management and labor have gotten together and decided the job could be done, the job was done.
2. ***Get a committee of labor and management to work out details for solicitation.***
   a. They, in turn, will appoint captain-leaders or chairmen who will be responsible for actual solicitation of no more than 10 workers.
   b. A card should be prepared for each and every worker with his name on it.
   c. An estimcte should be made of the possible amount each worker can set aside so that an "over-all" of 10% is achieved. Some may not be able to set aside 10%, others can save more.
3. ***Set aside a date to start the drive.***
4. ***There should be little or no time between the announcement of the drive and the drive itself.***
   The drive should last not over 1 week.
5. The opening of the drive may be through a talk, a rally, or just a plain announcement in each department.
6. Schedule competition between departments; show progress charts daily.
7. Set as a goal the Treasury flag with a "T."

AS of today, more than 20,000 firms of all sizes have reached the "Honor Roll" goal of at least 10% of the gross payroll in War Bonds. This is a glorious testimony to the voluntary American way of facing emergencies.

But there is still more to be done. By January 1st, 1943, the Treasury hopes to raise participation from the present total of around 20,000,000 employees investing an average of 8% of earnings to over 30,000,000 investing an average of at least 10% of earnings in War Bonds.

You are urged to set your own sights accordingly and to do all in your power to start the new year on the Roll of Honor, to give War Bonds for bonuses, and to purchase up to the limit, both personally and as a company, of Series F and G Bonds. (Remember that the new limitation of purchases of F and G Bonds in any one calendar year has been increased from $50,000 to $100,000.)

TIME IS SHORT. Our country is counting on you to—

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EVERYBODY EVERY PAYDAY AT LEAST 10%

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This space is a Contribution to America's All-Out War Effort by The American Forestry Association

FOREST CONSERVATION POLICY

of the

National Lumber Manufacturers Association

PERMANENT lumber and other forest-using industries are essential to the national welfare. We recognize the vital relation of forest conservation to the permanency of such industries and their employment. We believe that in forest ownership, operation and renewal, there should continue to be the fullest possible public reliance upon private enterprise and initiative.

Of the lumber going to meet the war demands, 95% is furnished from forest lands in private ownership. The lumber industry has pledged its full efforts to maintain and increase production to supply essential war needs. At the same time it recognizes an obligation to maintain its forest lands in productive condition. In order to accomplish this objective, the full resources of the industry and its trade associations are available to further desirable woods practices on industry-owned lands as well as on other forest lands in private ownership.

The lumber industry is encouraging TREE FARMS as one means of assuring intensive protection from fire and the application of improved forest management practices on individual properties. This is a voluntary undertaking of private land owners, conducted under the laws of the several States and in cooperation with existing forest and conservation agencies.

The establishment of forestry practices suited to continuous forest production is an obligation of forest owners and of the industries using forest products, and educational efforts now being conducted by industry to that end should be augmented by all organizations of forest owners. We are opposed to Federal regulation of private forest management practices and Federal control of State forestry policies. Such public regulation as may be necessary or desirable should, we think, be applied and administered under State law and the need or desirability of such regulation, and its scope if undertaken, should be determined in each State by the people of the State, without Federal coercion.

Fire prevention and suppression are the major problems in forest conservation. Therefore, we urge that maximum efforts be exerted to maintain and extend the cooperative principles established under the Clarke-McNary Act.

The cooperative and educational approach to national forestry problems should be more fully developed.

Research activities of the Federal Government in all forestry fields should be directed toward projects which will definitely aid the practice of forestry on private lands. It is recognized as a fundamental principle that the successful practice of public and private forestry is dependent upon continuing markets—foreign and domestic. To this end increased forest research activities should be directed toward the maintenance and expansion of domestic and foreign markets for forest products.

To retain the maximum possible proportion of forest land in private, tax-paying ownership is a sound national land policy. Only those lands which private ownership cannot keep productive should be taken into public ownership, primarily by the States, and secondarily by the Federal Government. We further believe it to be a sound national land policy to exchange public lands for private lands, to sell public lands, and to use the proceeds for the purchase of other lands, in order to consolidate public holdings and restore desirable lands to private ownership.

Financial contributions to local governments in lieu of taxes on Federal forest lands constitute a major problem. Federal contributions for such lands should be comparable to taxes paid on similar lands in private ownership.

An inventory of our only renewable resource—timber—should be completed and maintained by the Federal Government.

Multiple use of public and private forests, where adjacent, should be combined into continuous forest production units to afford private owners opportunity to purchase public timber without competitive bidding, subject to periodic readjustments of stumpage rates at prices not less than the appraised value.

Timber is a crop. When protected from fire, insects and disease, and managed for continuous production, a forest area is a TREE FARM. We invite all forest industry groups, including organizations and individuals, to join in furthering the continuous production of forest crops through the acceptance and registration of commercial TREE FARMS with the American Forest Products Industries.

Copies of this statement printed on heavy bond paper 12 inches by 18 inches, suitable for posting or framing, are available from

NATIONAL LUMBER MANUFACTURERS ASSOCIATION

1319 Eighteenth Street, N. W. Washington, D. C.